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Canada. Interdepartmental
Skilled Manpower Training
Research Committee
Report

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Training Research Committee.
Report.

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RESEARCH PROGRAM ON THE
TRAINING OF
SKILLED MANPOWER

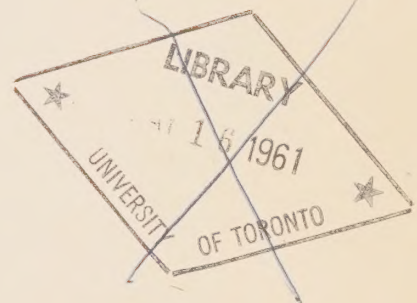
Government
Publication

No. 5

VOCATIONAL TRAINING PROGRAM
IN CANADA

A. - Technical and Trade Training

Publicly - Operated



Department of Labour, Canada,
in co-operation with federal and
provincial government agencies and
other groups

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Research Program on the
Training of Skilled Workers

Vol. 2 - Vocational Training Packages in Canada

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Preliminary report on a survey made by the Ontario branch of the Department of Labour in the Vocational Training Division of the Department of Education and other provincial departments concerned, under the general direction of the Independent Skilled Manpower Training Research Committee.

Department of Labour, Ontario,
in co-operation with Federal and
provincial government agencies and
other groups

July 1958

Introduction

This report is one of a series issued as part of the Research Program on the Training of Skilled Manpower begun in the summer of 1956. Recommended by the National Vocational Training Advisory Council and later endorsed by the National Apprenticeship Training Advisory Committee, the broad nature of the research program, as outlined by the Interdepartmental Skilled Manpower Training Research Committee appointed to direct the plan, is set out in Report No. 1 issued in June 1957.

Report No. 2, issued in August 1957, deals with technological and other changes affecting manpower and training in the electrical products, electronics, and heavy machinery industries. Report No. 3 dealing with such changes in the household appliance industry will be issued shortly. Report No. 4 which will be issued later this year, deals with acquisition of skills in five occupations selected for survey (draftsman, sheet metal worker, tool and die maker, moulder, and electronics technician).

The present report is the first of several dealing with various aspects of vocational training in Canada. It covers technical and trade training offered by provincial and municipal governments as part of their vocational education program. Other kinds of training in agriculture and other primary industries, in business, in personal and public service, and in art offered by provincial and municipal programs will be dealt with in separate reports. Training programs carried out in privately-operated schools, in plants and in other business establishments; in-service training programs operated by government departments and agencies; and training in the armed forces will also be dealt with separately.

The reports will all focus on vocational and technical training, but the importance of the relationship between the vocational and technical training provided for tradesmen, technicians and other groups of skilled manpower and the general education these persons receive in the established school system will not be overlooked. This relationship is of particular interest in the present report which examines technical and trade courses given in high schools.

The rapidly changing complexion of many Canadian industries and the increasing demand for workers in new types of skilled occupations underline the need for a careful review of training requirements and programs.

Method of Survey

Source of Material

Following a number of preliminary discussions with provincial officials, a questionnaire was drawn up requesting information on existing technical and trade courses offered by provincial and municipal agencies. These questionnaires were completed by the Departments of Education of all provinces except Quebec, where it was completed by the Department of Youth and Social Welfare.

Together with the annual reports of each province, the questionnaires formed the basic source of material for the information published in the present report. Additional information was obtained through discussions with provincial and school officials.

The portions of this report dealing with the provinces were submitted to the appropriate provincial officials for comment and criticism and changes were made in the text in the light of their observations.

Variations in Vocational Education

The pattern of vocational education in Canada varies from province to province. It should therefore not be assumed that all the courses listed under any of the headings in this report provide training at the same level or for the same purpose. Courses of the same name in different provinces may not be equivalent in content or in duration. This does not necessarily mean that one course is better than another; some courses are more practical than others; some stress the technology of certain occupations; some are designed to meet the requirements of a particular employment opportunity; some are designed around particular equipment or teaching staff in a school. Each course serves a particular objective in its own way.

Uniformity of courses is not, in fact, considered desirable. However, vocational education officials generally agree that minimum requirements of achievement and knowledge, based on standard terminology, would result in the more efficient training and utilization of Canada's skilled and technical manpower. For example, minimum requirements of achievement and knowledge have been established in each province for the trade of stationary engineering. These are known to employers, tradesmen, training authorities and the public. Every stationary engineer is rated and known by the classification in which he has been qualified. All training for this trade is related to the standard requirements of each class, but individual courses vary from part-time and correspondence courses in related subjects to full-time courses dealing with skills and theory. Individual courses do not provide complete instruction in the trade but collectively they serve the needs of persons interested in trade qualification.

Classification of Courses

In analyzing the material, several methods of classifying courses were considered. The major factor kept in mind was that the over-all research program on the training of skilled manpower is especially directed to discovering how the application of more advanced and complex engineering principles, the use of new materials, and increased automation have affected the demand for technical knowledge and skills.

For the purposes of this report, it was decided to group courses in each trade or occupation according to the content and to the level of mathematics, science and technical information taught. Accordingly, the following three broad classifications of courses are used:

- (1) Post-high-school
- (2) High school
- (3) Trade

(1) The post-high-school group includes advanced technical courses having the occupational objective of employment as a technician or technologist and requiring the study of science and mathematics in a general or specific field at a higher level than that taught up to high school graduation or junior matriculation. University courses leading to a degree are not included.

(2) The high school group includes courses with a definite occupational objective, including a study of high school mathematics, science, language, and social studies, and training in specific trade skills and theory. These courses are for youth attending high school.

(3) The trade courses are designed to prepare youths and adults who have left the regular school system for entry into employment, or to help those already employed to advance in their jobs. This group includes courses which are part of apprenticeship training programs. The skills of the trades or occupations, as well as trade theory, mathematics, and sciences directly related to such occupations form the main content of the courses.

Since there is little demand by girls and women for the type of training dealt with in this report, it was assumed that only boys and men were enrolled in the courses. The statistics in the report, therefore, are considered to represent males only. It should be noted, however, that women are free to participate in any of the courses mentioned.

No attempt was made to assess training against the requirements of industry. Wherever possible, however, the extent to which various courses and training programs are meeting the objectives laid down for them is mentioned.

Training Activities and Patterns

General

Approximately 200 provincial and municipal institutions offer technical and trade training in Canada: 20 to 25 offer mainly post-high school or advanced technical courses; 100 to 105 offer high school industrial courses; and 75 to 80 offer mainly trade courses (including annual classes for apprentices).

Publicly-Operated Technical and Trade
Programs in Canada

(Number of persons participating and graduating)

<u>Programs</u>	<u>1952-53</u>		<u>1956-57</u>	
	<u>No.</u> <u>Partici-</u> <u>pating</u>	<u>No.</u> <u>Gradua-</u> <u>ting</u>	<u>No.</u> <u>Partici-</u> <u>pating</u>	<u>No.</u> <u>Gradua-</u> <u>ting</u>
Post-high school	3,010	677	4,753	1,027
High school	20,302	1,445	25,254	2,243
Trade	9,721*	1,769	13,433*	2,437
Total	33,033	3,891	43,440	5,707

* Including full-time annual classes for apprentices; there are no "graduates" from these classes.

During 1956-57, approximately 44,000 persons in Canada participated in full-time day courses and approximately 53,000 persons in evening or correspondence courses in the trades covered by this report. (See Canada Table 1). The distribution of students in the different programs by field of specialization in 1956-57 was as follows:

	<u>Fields of Specialization</u>				
	<u>Electri-</u> <u>cal &</u> <u>electronic</u>	<u>Mechani-</u> <u>cal &</u> <u>metal-</u> <u>working</u>	<u>Auto-</u> <u>motive</u> <u>mechanics</u>	<u>Build-</u> <u>ing</u> <u>con-</u> <u>struction</u>	<u>Other</u>
	(per cent)				
Post-high school	43	22	-	4	31
High school	19	22	15	12	32
Trade					
Pre-employment & pre-apprenticeship	19	36	22	18	5
Full-time annual or industrial appren- tices	16	17	30	36	1

The over-all increase in participation was about 30 per cent from 1952-53 to 1956-57 (see Appendix Table 2). The increase was most striking in the post-high-school or advanced technical courses and in the annual apprenticeship classes, although the high school industrial and trade courses also showed an interesting rise.

In the five-year period 1952-1957, approximately 24,300 diplomas or certificates were given in courses covered by this report. Of these, approximately 4,100 were at the post-high school or advanced technical level; 9,600 at the high school industrial level; and 10,600 at the trade level (excluding apprentices). The increase in the number of graduates was greater, proportionately, than the increase in participation.

In general post-high school technical institutes and trades school are operated by provincial government departments while vocational training at the high-school level is under municipal direction. The federal government does not operate any of the technical and trade training programs but provides financial assistance to the provincial governments in this field. The details of such assistance is given in the section entitled "Federal-Provincial Co-operation", page 10.

The distribution of expenditures among the three levels of government both for Canada as a whole and by province is shown in Appendix Table 13. Total expenditure on vocational education in Canada in 1951 was just over \$30 million; in 1956 it had increased to approximately \$50 million. The total municipal share remained fairly constant during this period at approximately 45 per cent, the provincial share increased from approximately 41 to 47 per cent, while the federal share dropped from 12 to 8 per cent approximately.

It is probable that the federal contribution may increase in relation to that of the provincial and municipal shares, especially during the first two or three years of the new Vocational and Technical Training Agreement. Under this agreement, which replaced the Vocational Schools' Assistance Agreement in 1957, preference is given to technical institutes and trade schools; these are generally financed by the provinces, which are eligible for 50 per cent reimbursement from the federal government. Although there will also be expansion in municipal vocational high school programs, it now appears that the greatest expansion will be in provincial institutes.

Under the Vocational Schools' Assistance Agreement of 1945-55 the greatest expansion took place in vocational high schools, financed by municipalities with grants from the provinces. Federal assistance to the program was limited by fixed allotments which were paid on the basis of provincial grants or costs. As costs increased, the federal allotments were not sufficient to match provincial expenditures on vocational programs. These allotments have been increased under the Vocational and Technical Training Agreement No. 2 which provides an increased total federal contribution for this purpose.

The costs of vocational education is higher than that of academic education. This has been recognized by the provincial governments by increasing their grants to the municipal vocational schools. Although costs vary from province to province and from school to school the relationship between the costs of vocational high school courses and academic courses may be seen from the following per pupil costs in the province of Ontario.

Cost per Pupil (Ontario Secondary Schools)

<u>Year</u>	<u>Academic</u>	<u>Vocational</u>
1940	\$128.89	\$189.66
1945	167.49	266.15
1950	286.35	353.71
1955	428.84	506.37

The distinctive features of the technical and trade programs at the different levels are described in the following section.

Post-High-School Courses

Listing of courses in the post-high-school group is according to the level of course content and not according to entrance requirements. However, success in a post-high-school course requires a background of high school studies, so the entrance requirement for post-high-school courses is usually high school graduation or the equivalent.

In some cases the post-high-school work is general and extensive while in others it is confined to a very narrow field. Consequently this group includes a wide range of standards. In each case, the responsible provincial official has stated that the courses listed in this classification require the study of mathematics and science beyond the level taught in high school but no attempt has been made in this report to say how far these studies go beyond the high school level.

Three provinces have organized programs at the post-high-school level, Quebec, Ontario and Alberta. Some other provinces have individual courses in operation which are listed in the post-high-school group because of the content of the course. Courses are of one, two, and three year's duration; some include the technology of a broad industrial occupational group with limited instruction in practical skills; some provide very practical instruction in a skilled trade with a broad background of technical subjects; some are in a specific trade or occupation with a narrow concentration of related technical knowledge. Each has its place in the existing industrial situation and valid comparisons are difficult without minimum nation-wide standards against which the extent of the technical background can be assessed.

With the growing need for technicians and technologists in industry it can be expected that the post-high-school program will expand. In Ontario, Quebec and Alberta the programs are already expanding and plans are being made in other provinces for trade and technical institutes which will offer post-high-school and trade courses.

The program of studies of three post-high-school courses in electronics is shown in Appendix A, which indicates the time given to various subject headings in the same occupation in the three provinces.

High School Courses

Industrial courses at the high school level are offered in "vocational", "technical", and "composite" high schools in Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. These courses are a part of the program for students in the regular high school system. In all provinces they are operated by individual municipal school boards except in Nova Scotia where two or more municipalities are required to co-operate in the operation. Normally grants are made to the municipal school boards by the provinces and these are shared by the federal Government.

To qualify for federal assistance these courses must offer a minimum of 50 per cent of the school hours in shop and related subjects. Mathematics, science and drafting are considered to be related subjects. The remainder of the time is occupied with academic subjects. Courses must have a definite occupational objective, and shop instructors must be qualified tradesmen with teacher training.

The above characteristics are general across Canada but in other respects courses differ between provinces. In most of the provinces the first year or the first two years are exploratory in that students rotate through a number of shops and do not specialize in one trade until the last year or the last two years. In the Vancouver Technical School, students may take two or more related shops throughout the course, while in Nova Scotia and in the Winnipeg Technical Vocational School, students enter the trade of their choice in the first year and continue in this specialty throughout the course. In the latter case the officials of these schools have found very few cases of transfers between trades after the initial selection and therefore do not see the necessity for the exploratory year.

The academic subject matter offered also differs from one province to another. In some industrial courses the regular high school academic subjects are offered together with the shop work, and students may graduate from these industrial courses with matriculation standing in the academic subjects covered. In other provinces the academic and related subjects are not of the same standard as those taught in the regular high school and university entrance is not possible for graduates.

In some provinces, notably Ontario and Alberta, the emphasis appears to be on the general educational aspects of the course rather than on the specific occupational or trade objectives. In other words, the shop subjects are becoming optional in a general course. In some other provinces, however, trade competency is given first priority with social competency developed by a general course in the necessary fundamentals of good citizenship.

The emphasis on educational background or on trade competency in vocational high school courses appears to be influenced by several factors and opinions. One of these is the relatively high cost of providing shop facilities and equipment in each of the trades or activities found in a complex industrial community, especially since the demand for traditional skills and related knowledge appears to be changing.

Some provincial officials are of the opinion that present-day industry is looking for a broader background in general education in their prospective employees and is not so interested in the pre-employment development of the skills of a particular trade. Others feel that the graduate of a vocational course is better prepared for employment if he has had training in the fundamental skills and knowledges of a particular trade as well as a general education at high school level.

Some officials feel that vocational schools should offer as great an academic challenge to their students as do the academic schools and thereby attract the more intelligent students. This is possibly a defence against the attitude of some educators who feel that a vocational course is a dumping ground for the duller students.

In most provinces the industrial courses offered are related to the requirements of the industries in the areas served and it is therefore understandable that there will be some difference in the emphasis placed on the educational and training aspects of the program.

There is no evidence of a comprehensive and valid follow-up of graduates upon which the effectiveness of the training can be judged, but most officials concerned are of the opinion that the various programs offer worth-while employment opportunities to the graduates and provide a valuable pool of prospective employees for industry.

The high school vocational courses of three provinces are outlined in Appendix B as examples of the relationship between time given to academic and to vocational or shop subjects.

Trade and Industrial Courses

A great variety of other trade and industrial courses are offered in the various provinces; these range from a few weeks to two years in duration. For example, a number of provinces offer two- and three-week welding courses, consisting of training in specific skills only;

in the arts and crafts schools in Quebec, on the other hand, two-year courses are offered in this trade with one-third of the time given to general subjects. Naturally, the standards vary both in skill and theory with such a range of time allotment.

These courses are for students who are no longer striving towards general educational attainment and are either employed or seeking employment. The major emphasis, therefore, is placed on the development of skill in a specific trade. Educational prerequisites vary from completion of grade 8 studies to high school graduation, depending on the particular course.

In most provinces the programs are very flexible and frequent changes are made in the trades offered owing to changes in the local employment opportunities or in the requirements of the people served.

All these programs are operated by the provincial governments except the Vancouver Vocational Institute, which is a trade school operated by the Vancouver school board, and a few short special trade courses offered in the technical or vocational high schools in some of the other provinces.

Facilities vary from temporary and sometimes inadequate quarters set up to meet an emergency in training requirements or to handle an overflow of students, to modern and well designed trade schools. In Nova Scotia, New Brunswick, Manitoba, Saskatchewan, Alberta, and British Columbia plans are under way or being discussed for new trade schools. Considerable growth can be expected in most of the provinces in the next five years.

Vocational Evening Classes

In most provinces evening courses are provided for adults in industrial occupations and are offered in provincial and municipal schools. The evening school programs are very flexible and change from year to year, depending upon the facilities available and the requirements of those seeking instruction. Industrial courses may be for pre-employment training or for trade upgrading and are usually in the trade and industrial classifications, the chief exception being the program of advanced technical evening courses provided in Ontario. Most of the evening courses provided in the different provinces are non-vocational and usually include a wide range of academic studies and cultural and recreational activities. Only the vocational industrial courses are considered in this report.

Correspondence Courses

Vocational correspondence courses are an important feature of the publicly-operated provincial programs. These courses are provided at a nominal fee for residents of any part of Canada in a wide range of subjects covering the trade and related knowledges of the common occupations.

Advisory Committees

Advisory committees are used extensively at federal, provincial, and local levels of government to assist in developing and operating the various programs. The make-up and function of these committees are mentioned throughout the provincial reports but generally the committees consist of government, employer, and employee representatives, sometimes with representatives of other interested groups. They meet at regular periods to advise those responsible for the administration and operation of the programs on types of courses needed, course content, and sometimes act as examining boards, or assist in other ways to establish and maintain standards.

At the national level the Vocational Training Advisory Council has been established under the provisions of the Vocational Training Co-ordination Act. Operating through this council is the Apprenticeship Advisory Committee. These two groups meet twice each year to consider questions relating to vocational training in Canada and to make recommendations to the Minister of Labour as they see fit. The research program on the training of skilled manpower, to which this report is a contribution, resulted from a recommendation of the Council. Federal-provincial training agreements grow out of discussions and recommendations of these groups. More important even than the recommendations of the Council is the stimulation of more effective co-operation between all concerned at all three levels of government.

Provincial committees or boards are organized in a number of the provinces. These vary from appointed boards responsible for administration of provincial legislation regarding vocational education to informal interdepartmental committees advising on the co-ordination of programs and facilities within the province. With few exceptions provincial schools and institutes use advisory committees both at the school level and at the individual course level. These committees usually include representatives of labour and management along with other interested groups.

Committees are not used as extensively at the municipal as at the provincial level. In the municipalities where they are used they usually report through the municipal school board and include representatives of labour and management.

Federal-Provincial Co-operation

In all provinces vocational training is considered part of the educational system and since education is constitutionally under the jurisdiction of the provinces, the establishment of vocational training facilities has been regarded as a provincial responsibility. Nevertheless, during the past 45 years, the federal government has been a partner with the provinces in the development of vocational education and has passed legislation providing financial assistance for the establishment and operation of vocational, technical and trade schools.

Following is a summary of the Vocational Training Co-ordination Act and the federal-provincial agreements in effect under this Act.

The Vocational Training Co-ordination Act

This Act is the present authority for federal participation in vocational education projects; it is administered by the Minister of Labour and authorizes him:

- (1) To undertake projects to provide vocational training in certain specified fields normally regarded as federal responsibilities; and
- (2) To enter into agreements with any province to provide financial assistance, (not exceeding the amount contributed by the province) for approved projects undertaken by the province, or to reimburse the provinces the total cost of projects undertaken for the federal Government.

It also provides for the appointment of the Vocational Training Advisory Council consisting of a Chairman and not more than 20 members, with an equal number of representatives of employers and employees, and the remainder representing such other groups of persons or interests as the Governor in Council may determine.

The Act defines vocational training as "any form of instruction the purpose of which is to fit any person for gainful employment or to increase his skill or efficiency therein, and without restricting the generality of the foregoing, includes instruction to fit any person for employment in agriculture, forestry, mining, fishing, construction, manufacturing, commerce or in any other primary or secondary industry in Canada."

Most of the provinces have entered into agreements with the federal Government under the Vocational Training Co-ordination Act.

1. Vocational and Technical Training Agreement

This is the basic agreement under which federal assistance is provided to the provinces for vocational and technical training. It provides funds for the establishment and operation of vocational schools and institutes. The agreement has been signed by all provinces except Quebec and terminates March 31, 1962. Whereas vocational and technical schools at the high school level received a great impetus through the Vocational Schools' Assistance Agreement, this new agreement gives priority to the development of special facilities for trades and occupational training and for training at the advanced technical or post-high-school level.

Subject to the terms and conditions contained in the Agreement and to the voting of the funds by Parliament, the federal Government has undertaken to provide for the use of the provinces, and the Yukon and

Northwest Territories, an aggregate amount of \$40,000,000 for vocational and technical training during the five-year period of the agreement. Of this amount, \$25,000,000 is allocated for capital expenditures and the remaining \$15,000,000 for annual allotments.

2. Vocational Training Agreement

This agreement details the method by which federal and provincial governments co-operate in special training projects undertaken because of special needs arising from time to time and for which federal assistance may be provided under the Vocational Training Co-ordination Act.

Section two of this Agreement states: "This agreement shall apply and extend to vocational training as provided in the following schedules, and the percentage of contribution which the federal Government will pay in respect to approved costs under each schedule shall be as set forth:

Schedule "K-1" - Training of Service Tradesmen	- 100%
Schedule "K-2" - Training of Workers for Defence Industries	- 75%
Schedule "L" - Veterans' Rehabilitation Training	- 100%
Schedule "M" - Unemployed Workers Training	- 50%
Schedule "O" - Youth Training	- 50%
Schedule "Q" - Training of Foremen and Supervisors	- 50%
Schedule "R" - Training of Disabled Persons	- 50%

and any other training schedules added by agreement between the parties and by such percentage of contribution as is approved by the Governor General in Council."

Schedule "K-1" - Training of Service Tradesmen - Provision is made under this schedule for utilizing provincial trade and technical training facilities for the training of mechanics and technical personnel for the Army and Air Force. These courses have been used to supplement training provided by the Armed forces in their own schools and training centres. The volume of this training remained fairly constant during the years 1952 to 1955 but has declined rapidly during the past two years. In 1956-57 a total of 205 service personnel were trained under this schedule. The program has been discontinued in all provinces except Manitoba and Alberta.

Provision is also made under Schedule "K-1" for the operation of a co-operative scheme under which provincial authorities employ civilian teachers of certain academic subjects who are assigned to schools operated by the Army and Air Force. Money for this purpose is voted by the Department of National Defence and administered by the Department of Labour. The provinces are reimbursed in full for the cost of this service. Approximately 150 full-time and 50 part-time teachers are employed on this project.

Schedules "K-2" and "L" are not in operation in any of the provinces at present since the need for these programs has disappeared.

Schedule "M" - Unemployed Workers Training - This schedule provides a program for the training of unemployed persons, male or female, over 16 years of age whose opportunities for gainful employment, in the opinion of those responsible for the selection of the trainees, would be definitely improved by the course of training prescribed, or whose degree of trade skill would be increased.

Applicants must be registered with National Employment Service but need not have been previously gainfully employed, and may include persons who wish to prepare themselves for a more skilled occupation.

Selection of trainees must be made by representatives of the province and the National Employment Service.

Training may be given up to a maximum of one year but normally the length of training is approximately six months. Courses are generally given in full-time day classes but part-time courses may be given under exceptional circumstances.

Training on the job is provided for under this schedule when the desired training is not available in schools or training centres.

Training under this program is organized in all provinces except Newfoundland, Prince Edward Island, and Quebec.

Students enrolled in courses under this schedule receive unemployment insurance benefit if they are normally entitled to such. There are no tuition charges. In Nova Scotia, New Brunswick, Saskatchewan, Alberta, British Columbia, and the Territories, students who are not entitled to unemployment insurance benefit are paid a living allowance by the province. If the unemployment insurance benefit is not as high as the living allowance authorized the difference is paid by the province to bring the amount received up to the level of the authorized allowance.

Transportation to the school is paid at the beginning of the course and to the place of employment, or home, at the completion of training.

In 1956-57, unemployed persons trained under this schedule in the participating provinces numbered 2,355 at a total cost of approximately \$750,000.

Schedule "O" - Youth Training - A variety of short-term courses varying in duration from a few days to several months are conducted under the provisions of this schedule. Youth training was originally provided to meet the training needs of persons between the ages of 16 and 30 years who, because of the depression in the early thirties, had never been permanently employed and required a period of readjustment, including specialized training, to fit them for gainful employment in a suitable occupation.

Some of these courses have been continued for the benefit of young persons in rural areas and isolated districts, and include specialized training in the fields of agriculture, forestry, fishing and homemaking.

Expenditures on this program during 1956-57 decreased in five provinces but in British Columbia costs were more than twice those of the preceding year and federal expenditures increased from \$132,799.37 to \$242,384.10. Total enrolments increased from 2,870 to 3,660, although the number of days' training decreased from 62,323 to 61,329.

Special provision is made under Schedule "O" for sharing in the costs of bursaries to university students and nurses-in-training. This provision, which is known as Student Aid, has been in effect since 1939. During the past three years federal funds appropriated for this purpose have been at a fixed annual amount of \$219,250, much less than half the total provincial expenditures.

The bursaries are administered by the provinces through selection committees on which one member represents the federal Government. Assistance to university students is limited to worthy, needy students registered in courses leading to a degree other than theology. The maximum amount which may be granted is \$1,000 in any one year. Assistance to nurses-in-training is limited to those in approved training courses for professional nurses.

Most provinces fix maximum amounts lower than the foregoing and the assistance in each case is determined on the basis of need. The provinces also determine the conditions governing the award of such bursaries which may take the form of outright grants or loans or a combination of both.

During 1956-57, 2,380 university students, of whom 545 were women, received bursaries. The figures for the preceding year were 2,011 and 350. Nurses-in-training assisted during the year numbered 99 compared with 121 for 1955-56. The number of bursaries increased from 2,132 to 2,479.

Schedule "Q" - Training of Foremen and Supervisors - This schedule provides for the training of foremen and supervisors or others in equivalent positions in industrial or commercial establishments. Training under the agreement is provided in British Columbia, Alberta, and Ontario with federal assistance, and in Quebec without federal assistance. Plans are under way to establish such a program in Manitoba in 1958.

This program provides courses in job instruction, job relations, job methods and job safety. Instructor's manuals and teaching aids are provided in each of these courses by the federal Government and the cost of instruction is shared with the provinces.

Schedule "R" - Training of Disabled Persons - Under this schedule the federal Government shares equally with provincial Governments in the cost of individual training programs deemed necessary for the rehabilitation of disabled civilians. Applicants must be approved by a selection committee representing provincial and federal Governments. Training is restricted to persons who are handicapped because of a continuing disability and who require special training to fit them for suitable self-supporting employment. This training is provided as part of a nationwide co-ordinated program of rehabilitation.

In 1956-57, the number of persons trained under this schedule was 1,024, an increase of 231 over the previous year. The total cost of training was approximately \$350,000.

This schedule of the Vocational Training Agreement is in effect in all provinces except Quebec. An extensive program of training for disabled civilians is carried on in Quebec, however, without federal participation.

3. Vocational Correspondence Courses Agreement

This agreement provides for financial assistance to the provinces in the preparation of vocational correspondence courses. A sum of \$125,000 was provided for a five-year period beginning April 1, 1950, but the period has been extended from year to year because the full amount of the allotment has not been claimed by the provinces.

Under this agreement the vocational correspondence courses provided in any province are available to all residents of Canada on the same basis as for residents of the province providing the training.

4. Apprenticeship Training Agreement

The apprenticeship agreement covering a ten-year period came in force on April 1, 1954. It stipulates the conditions under which the federal Government will assist the provinces in carrying on the training of apprentices. In general, it provides for sharing equally in the costs of:

(a) Full-time or part-time training in classes for indentured apprentices, pre-indenture apprentices, and improvers or learners employed in an apprenticeable trade, who, in the opinion of the provincial authorities require such training to fit them for qualification as journeymen according to provincial standards;

(b) Travelling expenses and living allowances for apprentices attending full-time classes;

(c) Salaries and travelling expenses of supervisors or inspectors of apprenticeship;

(d) Per diem allowances and travelling expenses for members of advisory or trade test committees.

In 1956-57 there were 12,622 apprentices enrolled in classes under this agreement which is in operation in all provinces except Prince Edward Island and Quebec. Federal expenditures for the year were \$1,033,979.

The following table indicates the provinces and territories at present participating in the various agreements with the federal Government.

	<u>Agreements</u>			
	<u>Vocational and Technical</u>	<u>Vocational Training</u>	<u>Correspondence Courses</u>	<u>Apprenticeship</u>
	No. 2			
Newfoundland	x	x		x
Prince Edward Island	x	x		
Nova Scotia	x	x	x	x
New Brunswick	x	x	x	x
Quebec				
Ontario	x	x	x	x
Manitoba	x	x	x	x
Saskatchewan	x	x	x	x
Alberta	x	x	x	x
British Columbia	x	x	x	x
Yukon	x	x		
Northwest Territories	x	x		x

Training Programs in the Provinces

An attempt has been made in the following sections to describe in more detail the training facilities in each of the provinces. The information contained here was provided by the provincial and school officials concerned and approved by them for publication. Their assistance and co-operation are gratefully acknowledged.

NEWFOUNDLAND

All the industrial vocational training facilities in Newfoundland are operated by the Department of Education through the St. John's Vocational Institute. Some of the courses are offered in temporary quarters and some in the vocational annex at Memorial University. Present facilities are not considered adequate and plans for expansion are being discussed. Some of the alternatives suggested are the addition of a second story on the vocational annex at the university, and taking over the present university buildings when the new university is completed. There is no vocational high school program at present but consideration is being given to the establishment of one or two schools of this type in the province.

The apprenticeship program is administered by the Department of Labour with class training provided at the St. John's Vocational Institute by the Department of Education.

Trade Courses

Regular nine-month courses at the Vocational Institute are offered to persons over 16 years of age. In general Grade 8 standing or better is required for entrance. The courses are very practical with major emphasis on practical skills and trade theory. Trade mathematics and blueprint reading are included in all courses.

Pre-employment courses are offered in auto mechanics, diesel mechanics, machine shop practice, electricity, plumbing, carpentry, brick-laying, wireless telegraphy, radio servicing, drafting, welding, auto body repair and stationary engineering. (Courses in watch repairing and commercial subjects are also offered). Shorter term upgrading courses are provided in stationary engineering, marine engineering, and navigation for students wishing to prepare for certification in these occupations.

Full-time classes for apprentices are also provided each year in courses extending from three to twelve weeks in auto mechanics, auto body repair, bricklaying, plumbing, electricity, carpentry, machine shop practice and diesel mechanics.

A nominal fee of \$5.00 per term of three months is charged for institute courses and in some cases living allowances are paid to students coming from the outlying areas to take courses in St. John's.

An advisory committee is being organized for the Institute and the apprenticeship trade advisory committees are used to advise on courses provided in the apprenticeship trades. Close co-operation exists between the Departments of Labour and Education in the operation of the school and many of the graduates from the pre-employment courses enter their apprenticeship with a credit of one year for their school work.

Teachers are required to be high school graduates and to have proficiency in the trade taught. No vocational teacher training is provided by the Department of Education but some teachers are sent out of the province for training in teaching techniques.

Evening Classes

Part-time evening industrial classes, mainly for registered apprentices, but in some cases for upgrading in trades are offered at the Institute by the Department of Education. These extend up to 140 hours per year in trades for which shop facilities are available.

Correspondence Courses

Correspondence courses have not been developed by the Department of Education but, through the correspondence courses agreement between the federal Government and the provinces, courses offered in other provinces are available in Newfoundland. In some trades the department has purchased courses from other provinces and distributes and services these for the residents of the province.

PRINCE EDWARD ISLAND

The Department of Education operates the Provincial Vocational School in Charlottetown where training courses are provided in the following industrial trades: automotive repair, bricklaying, carpentry, drafting (architectural), plumbing and sheet metal working, electricity, and welding.

No high school industrial courses or advanced technical courses at the post-high-school level are provided in Prince Edward Island.

Trade and Industrial Courses

Courses at the Provincial Vocational School are available to any person over 16 years of age with Grade 10 education. In some cases those having completed Grade 9 are considered. No tuition fees are charged but a \$5.00 deposit is required against breakage or loss of school equipment.

All the trade courses listed above are of eight months' duration, except welding which is a four-month course. In automotive mechanics and plumbing a second year course is available for students who wish to return for more advanced training. Few students, however, take the two-year course; only one plumber is on a second year course this year (1957-58).

Each student on a trade course must spend approximately 10 per cent of his time in related studies, i.e., mathematics, basic science, blueprint reading, and general knowledge. Ninety per cent of the time is given to shop practice and related trade theory.

The Department of Education does not pay any living allowances to students in trade courses. However, a few physically handicapped students are referred each year for training under Schedule "R" of the Vocational Training Agreement and they receive \$40 per month from the Department of Education.

For the past two years the school has not had enough applications to bricklaying and plastering to operate a course, and in carpentry the number of applicants is below capacity. In the other trades there is a growing demand for training. In most of the trades offered, except electricity, there are not enough job opportunities in the province for all of the graduates and many go to other parts of Canada for employment

after graduation.

In general, the school facilities are inadequate to meet the demand. (Commercial, household economics, and farm courses, are also offered in the premises, some in co-operation with Prince of Wales College). Plans are underway for an addition to the present building to provide more shop space. A new course for heavy duty mechanics is scheduled to start operating early in 1958 but will be in temporary quarters until the new addition to the school is completed.

Trade advisory committees are not used in the vocational school.

Evening Classes

Part-time evening courses are provided in 16 activities including the following trades, automotive mechanics, bricklaying, carpentry, drafting, plumbing, electricity, sheet metal working, and welding. These night courses are for adults who are working at the trade, or who wish to learn the trade, and for students in day courses.

Correspondence Courses

Prince Edward Island does not offer any correspondence courses of its own but courses provided by other provinces are available to residents as provided in the federal-provincial Vocational Correspondence Courses Agreement.

NOVA SCOTIA

Two vocational high schools and four Department of Labour trade schools offer most of the full-time industrial courses in Nova Scotia.

Post-high-school Courses

There is no general program of training at the post-high-school level, but the Department of Education operates three special classes in marine engineering, marine navigation and land surveying, each of which requires a limited amount of study beyond the high school level in the mathematics and science related to these special fields.

Vocational High School Courses

Regional vocational high schools are looked upon by the Department of Education as the basis of the vocational education program. Two such schools are now operating, one in Halifax and one in Yarmouth; they serve two or more neighbouring municipalities which enter into an agreement with the provincial Department of Education, each sharing in the cost. They are administered by an appointed board representing the participating governments. The costs are paid initially by the province which collects from each participating local government in accordance with the percentages set forth in the agreements. The federal Government

contributes to the provincial share under the terms of the Vocational and Technical Training Agreement No. 2.

Plans are being developed for a vocational high school in Sydney to serve the municipalities in Cape Breton County. The establishment of this school has been delayed for several years because of financial conditions in the coal mining municipalities involved. With an offer of more financial assistance by the province, however, the possibility of an early start on the school now exists.

Industrial courses are offered in Nova Scotia in automotive repair, bricklaying, carpentry, drafting, electricity, heating and ventilating, machine shop practice, painting and decorating, plumbing, sheet metal working and welding. These are three-year courses, except bricklaying, painting and decorating, and welding, which are two-year courses. A minimum of 50 per cent of the time is allotted to shop work and related theory. The remainder of the time is given to the study of language, science, mathematics, and social studies. These general studies are required of all industrial students but the subject matter is not the same as that included in the academic high school course. The regular academic high school course leading to matriculation is not given in these schools.

Each course is based on an analysis of the trade involved and admission to the course depends on the ability of the applicant to proceed with and understand the work outlined in the analysis. Generally entrance requirements include completion of Grade 9 but in some cases a lower grade of schooling may be accepted if, in the opinion of those responsible for selection, the applicant can proceed with the work of the course. There is very little relationship between each of the years of the three-year industrial courses and Grades 10, 11 and 12 of the senior high school courses.

Students specialize in one trade for the duration of the course.

A credit of up to two years is granted by the provincial Apprenticeship Regulations for successful completion of a course in a trade designated under the Apprenticeship Act.

There is no tuition fee for students from the participating municipalities but \$100.00 a year is charged those from other parts of the province. Living or travelling allowances are paid to those living outside the immediate locality of the school. No bursaries are available to students of these schools.

Shop teachers must have acceptable experience as journeymen in the trade taught and must complete an approved series of courses of teacher training. Summer school sessions are provided by the Department of Education through which vocational teachers may obtain their teacher training. Qualified high school teachers are employed for the general subjects.

Trade advisory committees, with representation from labour, management, and other interested groups, form an important part of the organization of these vocational schools.

One-year courses are provided for graduates of the academic high schools. In these courses all of the time is given to shop work and related theory; no academic subjects are required.

The objective of these industrial courses at the high school level is to train workers in the skills of a specific occupation and to provide a general educational background, sufficient to produce "thoughtful and socially competent citizens as well as technically trained people". The officials of the department feel that this objective is being realized.

Trade and Industrial Courses

The provincial Department of Labour operates four trade schools offering a number of full-time, short-term trade courses for unemployed adults referred by National Employment Service and for registered apprentices. The schools are located at Halifax, Stellarton, North Sydney and Springhill.

The program for unemployed adults is very flexible and is adopted to meet changing employment opportunities. Courses are of six to eight months' duration and include auto body repair, diesel mechanics, machine tool operation, sheet metal working and welding. (Commercial courses and some service courses such as cooking are also offered). For the past few years employment conditions in the soft coal mining industry have not been good and many coal miners have become unemployed following the closing of some of the mines. This program has achieved its objective in providing a start in a new occupation for many of these men and in providing pre-employment training for younger men who were unable to find employment. The program is financed jointly by the provincial and federal Governments under Schedule "M" of the Vocational Training Agreement.

The Department of Labour trade schools also offer pre-employment courses and annual classes for apprentices registered under the Apprenticeship Act. Six-month pre-employment courses are offered in auto mechanics, electrical construction, and carpentry, and short-term annual courses of four to eight weeks' duration are also offered in the designated trades of auto mechanics, bricklaying, carpentry, electrical construction, plumbing and steamfitting.

There is no tuition fee for students at the Department of Labour trade schools. Students are paid a living allowance ranging from \$9.00 to \$22.00 a week, depending on marital status and place of residence. Students eligible for unemployment benefits receive these while on course in which case allowances are paid only to bring the total received up to the establishment rate.

Trade advisory committees are appointed for most of the courses.

Instructors are journeymen and must attend the required number of summer sessions at the vocational teacher's school operated by the Department of Education.

Courses are very practical, approximately 90 per cent of the time being spent in the shops and in related knowledges. The remainder of the time is allotted to mathematics and blueprint reading or drafting.

The schools are operating in temporary, rented quarters which in most cases are unsuitable. Plans are being discussed to build a new provincial trade school with federal assistance under the Vocational and Technical Training Agreement.

The provincial Department of Trade and Industry also provides short-term courses for fishermen in marine engines, nets and gear, and navigation. Mobile schools mounted in trailer units go from village to village offering these courses to fishermen in their own locality.

Evening Classes

Part-time evening courses are provided by the Department of Education in many localities throughout the province, offering a wide range of subjects, both vocational and non-vocational. The industrial courses include auto mechanics, carpentry, diesel mechanics, drafting, electricity, radio servicing, sheet metal working, steam engines, and welding. They are of 90 hours' duration per year and require three years to complete. Part-time courses are also provided by the Department of Education for the Department of Mines, offering upgrading courses for coal miners. The training prepares candidates for the examinations required to qualify as mine electricians, mine surveyors, stationary engineers, mine examiners, overmen, underground managers, mine managers.

Correspondence Courses

Vocational correspondence courses have been developed by the Department of Education in automotive mechanics, blueprint reading, architectural drafting, mechanical drafting, sheet metal drafting, electricity, naval architecture, plane surveying, plumbing, shop mathematics, steel ship construction, wooden ship construction, and telephony.

The courses are available to residents of any part of Canada under the terms of the vocational Correspondence Courses Agreement, and in return, residents of Nova Scotia may enrol in courses offered by any other province.

NEW BRUNSWICK

Industrial vocational courses in New Brunswick are offered in more than 40 municipal, regional, composite and vocational high schools and at the New Brunswick Technical Institute in Moncton operated by the Department of Education.

Post-High-School Courses

There is no organized program at the post-high-school level but three of the courses offered at the New Brunswick Technical Institute in Moncton - drafting, mechanical technology, and radio and television - require the study of mathematics and science beyond that taught in high school.

Applicants for these three courses must have completed high school. Duration of the courses varies; drafting and radio-television require 43 weeks, mechanical technology requires 80 weeks. The mechanical technology course was given for the first time in the fall of 1957.

The drafting course provides basic training in general drafting and a choice of specialization in either mechanical or architectural fields. It is designed to train junior draftsmen for either the architect's office or the mechanical drafting shop. The mechanical technology course stresses the technical knowledge and skill of machine shop practice, welding, and mechanical drawing. Subjects taught include mechanical drawing, metallurgy, language, social studies, mathematics, physics, machine shop practice, welding, and sheet metal work. The radio-television course was originally designed as a service course but has been expanded to include a detailed study of the principles of electricity and electronics. Graduates are being employed as servicemen for the radio and television industry, as technicians in the production of radio and television broadcasts, and in various fields of industrial electronics.

Fees for these three courses are the same as for other courses at the institute, a laboratory fee of \$5.00 per course and \$1.00 per month for registration.

High School Courses

An extensive industrial program is in operation at the high school level in New Brunswick. More than 40 high schools throughout the province offer industrial courses, the enrolments ranging from four to more than 400 students.

All the courses are at the Grade 10, 11 and 12 levels and are designed to give a thorough grounding in the essentials of a general high school education as well as training in subjects and skills fundamental to productive industry or occupations.

The shop facilities in the various schools differ depending upon the size of the school. In the smaller schools the different shop subjects are all taught in one general shop; in the larger schools, each shop subject is taught in its own specialized shop. The equipment and machinery also varies with the size of the school. Generally the specialized shops are better equipped for trade work than the general shops, with a wider range and heavier type of equipment.

Three types of courses are offered: industrial courses; industrial matriculation courses; and special courses.

The main objective of the industrial course is to prepare students for employment in a specific trade or occupation. It is a three-year course in which students are required to carry two or three shop subjects in Grade 10, and then specialize in one shop, with related skills, in Grades 11 and 12. High school subjects in language, social studies, science, and physical education are part of the course but the mathematics taught is shop mathematics and is not equivalent to matriculation standing.

The industrial matriculation course is similar to the industrial course but the students study and are examined on academic subjects at the matriculation standard.

The special courses are of shorter duration and concentrate on shop practice and related theory. Most of these are offered at the Saint John Vocational School. They are made as flexible as possible to suit the individual's need. They range from a few weeks in advanced or specialized training for tradesmen, to one and two-year courses emphasizing trade practice in a specific trade.

(The Saint John Vocational School and the Moncton Composite High School also offer a technical high school course, which is the same as that given in the academic high schools. Latin, an optional subject in New Brunswick, is not included in the technical curriculum; practical training in the shops being substituted for it. The shop training is of distinct advantage to students entering science and engineering departments of universities. Five hours a day are devoted to academic work, and one hour to practical work).

All vocational education in New Brunswick comes under the jurisdiction of the Department of Education through the Vocational Education Board, which is appointed by the provincial Board of Education. In each municipality operating a vocational program, a local or county vocational committee composed of representatives of the local school board, employers, and employees is responsible to the provincial board for the operation of the program in that area.

These municipally operated vocational high school programs are growing throughout the province. Approximately half of the total high school enrolment in schools with vocational departments is in vocational courses. The industrial trades included in these vocational courses are drafting, electricity, radio and television, motor mechanics, machine shop practice, carpentry, sheet metal work, welding, and woodworking.

The Saint John Vocational School is the largest of the municipally operated schools at the high school level, and a greater variety of courses is offered here than in the other schools. The standard high school industrial courses are offered together with a wide range of special courses

of one and two years' duration, including drafting, electricity, machine shop practice, motor mechanics, printing, radio-electronics, sheet metal work, welding, and woodwork. The Saint John Vocational School very often provides short trade courses, such as special apprenticeship classes, full-time or part-time, to meet the need of a group or an individual.

The larger schools with specialized shops are achieving their vocational objectives and students from these schools are in demand. Graduates from the smaller schools with general shops, however, are finding it profitable to continue their trade training at the New Brunswick Technical Institute where a large percentage of the students are graduates of the high school industrial courses.

Shop teachers in the vocational industrial high school courses have either journeyman status plus one year of teacher training, or two years of teacher training.

Trade and Industrial Courses

A full-time trade school program is offered at the New Brunswick Technical Institute in Moncton. Courses of five to ten months' duration are offered in the following industrial trades: body and fender repair and painting, bricklaying, carpentry, cabinet making, drafting, electricity, machine shop practice, motor mechanics, plumbing and welding. (Courses in barbering, upholstering, dressmaking, practical nursing and commercial subjects are also offered).

A general program of studies in practical mathematics, science, language, social studies, and blueprint reading is included with the shop work and related theory.

Graduates from these courses are granted a credit of from one to two years on their apprenticeship. A very close relationship exists between the Institute and the apprenticeship program. A wide range of full-time and part-time refresher or annual courses is offered for apprentices referred for training by the Department of Labour.

There is an advisory board for the Institute with representatives of the Departments of Education and Labour, employees, employers, and other interested groups. Apprenticeship trade advisory committees are used to assist in the organization and operation of courses in the designated apprenticeship trades.

Shop teachers are qualified tradesmen with one year of teacher training or the equivalent (four summer school sessions).

The enrolment in the pre-employment courses includes fee-paying students, unemployed persons referred under Schedule "M" of the Vocational Training Agreement, and physically handicapped persons referred under Schedule "R" of the same agreement.

Fees are \$5.00 per course plus \$1.00 per month. Living allowances are provided for unemployed persons, physically handicapped persons, and apprentices, provided the applicant is approved for training in one of these categories by the appropriate authority. The allowances are not paid to students drawing unemployment insurance benefits equalling or exceeding the rate of allowance.

The Technical Institute is located in a portion of the wartime RCMP Manning Depot in Moncton. The buildings are temporary and not designed for school purposes. Plans are being discussed to provide a new institute offering an expanded program in the near future.

Evening Classes

Vocational evening classes are offered throughout the province wherever there is a sufficient demand and where space and facilities are available in the schools. These courses cover a very wide range of subjects, many of them hobby or general improvement courses. In 1956-57, approximately 17 per cent of the enrolments were in industrial courses in some phase of the subjects offered in the day classes.

Evening classes usually consist of 40 hours of instruction, the fees varying with the course. In the Saint John Vocational School the fee for vocational subjects is \$5.00 per term for residents of the city and \$6.00 for non-residents. Certain courses, such as welding, which are more costly to operate, require slightly higher fees.

Correspondence Courses

Vocational correspondence courses have been developed in New Brunswick in stationary engineering, automotive spray painting, and body and fender repair. The last two are offered under the federal-provincial Vocational Correspondence Courses Agreement and are therefore available to all Canadians. Stationary engineering was not financed under this agreement because an approved course of this kind had already been developed in Alberta. Consequently, the stationary engineering course is for residents of New Brunswick only, particularly for apprentices in this trade.

QUEBEC

Trade and technical courses are offered in a wide range of occupations by the Department of Social Welfare and Youth of the Province of Quebec.* This is the only province in which such a department of government has been established to assist young men and women in the fields of vocational education and social welfare, and one of its major functions is the operation of more than 50 schools in which trade and technical courses are offered.

* Several other departments (Agriculture, Fisheries, Lands and Forests and Mines) also offer courses in activities over which they have jurisdiction. These are not included in the present survey.

Basically this program consists of two levels of training,

- (1) Technical courses of three years' duration.
- (2) Trade courses of two years' duration.

Since both the trade and technical courses are often offered in the same schools the same facilities and teaching staff are available for both courses. Tuition fees for trade students are the same as for the technical students.

There are two distinctive features in the vocational program in Quebec: first, the major vocational education program is completely separated from the Department of Education and the academic school system; and second, a high degree of uniformity in course content and standards has been established in the schools throughout the province.

Some of the courses are filled to capacity, others could accommodate more students; but enrolments in both trade and technical courses are growing in numbers and new schools are opening every year. There is a desire on the part of the Department of Social Welfare and Youth to provide training opportunities for as many of the young people of the province as possible. At present there are arts and crafts schools in the following centres: Alma, Amos, Asbestos, Cabano, Cap de la Madeleine, Drummondville, Granby, Grand'Mere, Grandes-Bergeronnes, Joliette, Knowlton, La Tuque, Lauzon, Louiseville, Matane, Mont-Joli, Montmagny, Mont-Laurier, Montreal (4 schools), Plessisville, Port Alfred, Riviere-du-Loup, Rouyn, St. Anne-des-Monts, St. Gabriel de Brandon, St. Jean, St. Jerome, Shawbridge, Sorel, Thetford Mines, Trois Rivières, Valleyfield, Victoriaville.

Technical schools are located at Arvida, Chicoutimi, Hull, Montreal, Quebec, Rimouski, Shawinigan, Sherbrooke, and Trois Rivières. Seven other schools specialize in one industry, i.e., the Montreal Automobile School, the Quebec Automobile School, the Furniture School in Montreal, the Graphic Arts School in Montreal, the Marine School in Rimouski, the Papermaking School in Trois Rivières, and the Textile School in St. Hyacinthe.

Only in the case of the Technical School in Arvida is the school administered by the local school board; all others are administered and operated by the Department of Social Welfare and Youth.

Consideration is being given to changing the names of the present arts and crafts, technical, and special schools. However, it is not expected that there will be any change in administration or program.¹

Technical Courses

Technical courses consist of approximately two-thirds technical and academic studies and one-third shop practice. The three-year courses require high school graduation for entrance. However, applicants who are not high school graduates but have completed at least two years of high school may take a preparatory year enabling them to complete the technical course in four years. The preparatory year provides the necessary background in mathematics, science, and other subjects and shop work is exploratory in that students rotate through several shops during the year.

Emphasis is placed on academic and technical subjects with a uniform curriculum followed in all schools. Basically, all technical courses are the same except for the shop specialty which occupies approximately one-third of the time. The basic course consists of algebra, geometry, trigonometry, physics, chemistry, sociology, mechanics, electricity, drafting, sketching, history, geography, language, cost accounting, and industrial legislation. The shop specialty is an option which is chosen from a wide range of skilled trades (see Appendix C Table II-A (Quebec) for a list of these trades). Not only is the course content uniform but standard annual examinations are set and at the end of the final year a "jury" is designated yearly by the Minister of Social Welfare and Youth to judge the standing of each graduate. The decision of this "jury" which is made up of representatives from industry, is final in granting diplomas.

The objective of the technical courses is to teach the student the practical skills of a specific trade and give him a broad knowledge of technical subjects so as to prepare him as an industrial technician and for supervisory positions in industry.

¹ In February 1958, the names of the Department of Youth and Social Welfare schools were changed as follows:

1. Technical schools became "Institutes of Technology", e.g. the Hull technical School became the Hull Institute of Technology.
2. Arts and crafts schools became "Trade Schools", e.g. the Granby Arts and Crafts School became the Granby Trade School.
3. The specialized schools became the Papermaking Institute of the Province of Quebec; the Textile Institute of the Province of Quebec; the Marine Institute of the Province of Quebec; the Graphic Arts Institute of the Province of Quebec. The Furniture School became the Institute of Applied Arts of the Province of Quebec and the Automobile Schools of Montreal and of Quebec became the Automobile Trade Schools of Montreal and of Quebec.

No changes were made in the courses offered in these schools.

The following shop specialities are offered: automobile mechanics, construction woodworking, diesel mechanics, electricity, electronics (including radio and television), foundry work, furniture making, linotype operating, letter and offset press operation, typography, offset camera work, offset plates making, industrial chemistry, machine shop practice, marine trades (including navigation, wireless communication, and engineering), papermaking, instrumentation, plumbing and heating, refrigeration, sheet metal working, textiles (designing, weaving, woolen fabrics, cotton fabrics, knitting, and dying), toolmaking, smithing, and welding. None of the schools provides shop facilities for all of the trades but there are nine technical schools offering a choice of up to 12 of these shops specialities.

To make these technical courses available to as many young people as possible and to ease the financial burden of sending a son to a centre where a technical school is located, the Department of Social Welfare and Youth offers the first and second years of specialization in many of the 36 arts and crafts schools throughout the province. Here the same course content is offered and standard examinations are written each year; however, students must go to a technical school in one of the centres mentioned above for at least their final year. These are the only schools permitted to grant a graduation diploma to technicians.

Shops and laboratories are well provided with standard industrial machines and test equipment. For instance, the papermaking and textile schools have the up-to-date equipment required for complete manufacturing processes. In most centres, instruction is given in French. However, in the Montreal area and in other centres where there is sufficient number of English speaking students, separate classes are given in English. Most of the teaching staff are technicians who have graduated from technical courses; some are professional engineers. The department provides teacher training by granting scholarships and bursaries for attendance at summer school courses at universities, normal colleges, or at specialized institutions in Canada or elsewhere if need be.

Tuition fees are from \$40.00 to \$50.00 a year, plus approximately \$14.00 for other school charges. For Canadians from outside Quebec the tuition fee is \$100.00 and for non-Canadians \$200.00. The department offers many scholarships and bursaries and it is estimated that 60 per cent of technical students receive financial assistance averaging \$250.00 per year.

Advisory committees from industry are not used for technical courses but industry is represented on the examination "jury" mentioned above and through this function has a marked influence on the standard of training as well as on the course content.

Judging by the employment record of the graduates, officials of the Department of Social Welfare and Youth are satisfied that the objectives of the courses are being achieved.

Trade Courses

Trade courses are of two years' duration and consist of two-thirds' shop practice and related theory and one-third academic studies. To be eligible for admission a student must have completed at least Grade 7 and have passed an entrance examination. In some trades completion of Grade 9 is required.

Emphasis is placed on trade practice and theory but all students, regardless of the trade, must spend approximately 15 periods per week on standardized courses in language, drafting, mathematics, science, social studies and business practice. The academic level of training in these subjects is not as high for trade courses as for the technical courses, but the same uniformity is maintained by the department through standardized courses and examinations.

Courses are offered in the following trades: automobile mechanics, auto body repair, electricity, foundry work, machine shop practice, pattern making, radio servicing, refrigeration, sheet metal working, smithying, welding, and woodworking. Some of these trades are offered in each of 36 arts and crafts schools throughout the province. Some are also offered in the technical and special schools.

The complete program of trade courses includes many other occupations in commercial and service activities which are not included in this report, and in addition to the courses mentioned most of the specialized schools conduct seasonal or intensive day classes for upgrading tradesmen.

In some schools courses are offered that are not of the same standard as the regular program outlined above (for example, a one-year auto body course) but these are being eliminated or broadened to meet the standard as quickly as possible.

Full time trade courses, mainly in the building trades, are offered for apprentices in five centres operated by local apprenticeship commissions in the regions of Montreal, Quebec, Sherbrooke, Chicoutimi and Hull. These centres come under the supervision of the Department of Labour and will be dealt with in a later report on apprenticeship.

Evening Classes

Evening classes are offered in most of the technical and arts and crafts schools throughout the province. These courses usually extend over 20 weeks during the fall and winter months for a total of 40 to 60 hours. They vary from year to year depending upon the demand for certain subjects and are mainly upgrading classes for employed persons who wish to improve their knowledge of trade theory and practice. A listing of these courses would include over 150 subjects complementary to the practice of the trades and the industrial activities in the province. In general fees for evening classes vary from \$8.50 to \$25.00 depending on the course.

Correspondence Courses

The Department of Social Welfare and Youth maintains a Correspondence Course Service to provide correspondence courses in technical subjects and to publish technical text books in French, written by actual or former teachers in technical education. Correspondence courses are offered in French and include the following subjects: sketching, mechanical drawing, electricity, algebra for industry, arithmetic for industry, calculus, carpenter's square, blueprint reading, forging, patternmaking, carpentry, sheet metal layout, machine shop practice, printing trades, house painting, acetylene welding, automobile engines, diesel engines, machine parts, electric wiring, radio, printing, sign printing, and automotive electricity.

Requests for correspondence courses in Quebec are increasing but owing to lack of space and other factors the service has not been able to keep up with the demand.

Correspondence courses produced by this service in French are available to French-speaking Canadians in other provinces on the same basis as for residents of Quebec.

ONTARIO

Provincially operated Institutes of Technology provide training in a variety of technical fields at the post-high-school level. Industrial courses leading to diplomas in 25 fields are offered in many of the municipally operated secondary schools. One provincially operated Institute of Trades provides related and practical training for apprentices registered with the Department of Labour, and a few courses for fee-paying students.

Post-High-School Courses

Ryerson Institute of Technology in Toronto is the largest of the technical institutes and offers 21 post-high-school full-time courses, of which the following are pertinent to the present study: aeronautical technology; architectural technology; chemical technology; electrical and electronic technology; gas technology; mechanical and metallurgical technology.

These are all three-year courses requiring an Ontario secondary school graduation diploma or its equivalent as the minimum educational requirement for admission. Yearly sessional and student activity fees are \$187.00. In 1956-57, \$40,000 was offered in bursaries, scholarships, and awards through the generosity of governments, industrial and business firms, technical and professional associations, foundations and individuals.

Advisory committees are organized for all courses for engineering technologists. These courses are highly technical and approximately 90 per cent of the time is given to related mathematics, science, and laboratory or shop studies.

The Hamilton Institute of Technology, formerly devoted entirely to the textile industry, has now been broadened to include mechanical and electrical and electronics technology courses similar to those offered at Ryerson.

The Eastern Ontario Technical Institute in Ottawa was opened in the fall of 1957 offering courses in electrical, electronic and mechanical technology and it is planned to add a course in chemical technology in 1958. The courses parallel very closely those given at the Ryerson Institute of Technology.

The Institute of Mining at Haileybury offers a two-year course in mining technology. This is a technician's course on the same level as the first two years of the technological courses offered in the other institutes.

The former Lake Head Technical Institute is now a Junior College operated by a Board of Governors and not one of the Provincial Institutes of Technology. It offers two-year technical courses in mining and forestry as well as first-year university work in arts, science, engineering, commerce and household science.

No trade courses are offered in these institutes; their facilities are devoted entirely to the training of technologists and technicians.

Approximately 40 per cent of those who enter the first year of the engineering technology courses complete the three years and successfully graduate. Placement and performance of graduates in industry indicates that the objective of the institutes - to provide engineering technologists at a level equivalent to the Higher National Certificate standard in Great Britain - is being realized. Graduates from engineering technology courses, after they have had one year's engineering experience, are rated as Engineering Technologists Grade I by the Association of Professional Engineers of the Province of Ontario who have established standards for technicians and technologists in the province.

Most of the teachers hold university degrees, have industrial experience and are qualified as teachers. Instructors without degrees are known as Technological Instructors; they have adequate industrial experience and are qualified as teachers.

The premises of the Ryerson Institute are being replaced by new buildings on the present site to accommodate 3,000 students. The first new unit will be finished shortly and plans are completed for a second.

The organization of a new institute in Windsor, to be known as the Western Ontario Institute of Technology, will be completed soon. This Institute will offer first-year courses in electrical and electronic technology, mechanical and metallurgical technology and chemical technology in 1958-59.

Enrolments are increasing and the rate of increase is expected to accelerate during the next ten years.

Each institute is administered by the Minister of Education through the Secondary Education Branch with advisory committees representing the respective fields of industry covered by the courses.

High School Courses

Industrial courses at the high school level are offered in 57 vocational and composite secondary schools throughout the province under the administration of local school boards. Each vocational or composite school has a statutory advisory vocational committee of either eight or twelve members appointed by the school board. Half the members of the advisory committee, including its chairman, are also school board members; the other half is divided equally between employers and employees appointed from outside the board. Recommendations of the advisory committee are subject to the approval of the board. Individual trade advisory committees are not organized in these schools.

The high school industrial courses are designed to give -

- (a) the foundation of a general education as a basis of good citizenship, and;
- (b) specialized basic training in the subjects, processes, and operation in the fields of work and industry to which the school concerned is most closely related.

The courses last four years, from Grade 9 through Grade 12 and lead to a secondary school graduation diploma (industrial) in any one of 25 specialized shop subjects including the following industrial trades:

Aircraft Mechanics	Machine Shop Practice
Applied Electricity	Mining
Applied Electronics	Plumbing
Auto Mechanics	Printing
Drafting - Architectural	Sheet Metal Practice
Drafting - Mechanical	Welding
Electrical and Steam Operation	Woodwork - Cabinet
Foundry Practice	Woodwork - Carpentry
Industrial Chemistry	Woodwork - General
	Woodwork - Patternmaking

No single school provides courses in all shop subjects. In most schools there are only four or five different trade shops although some of the larger schools offer as many as 15 or 16.

The normal distribution of time to various subjects during the four years is as follows:

<u>Grade</u>	<u>Shops and Drafting</u>	<u>Mathematics, Science (per cent)</u>	<u>Other Subjects</u>
9	25	25	50
10	25 - 35	25	40 - 50
11 and 12	35 - 45	25	30 - 40

In grades 9 and 10 the shop work is exploratory in nature; that is, the student is given instruction in several shop subjects. In grade 11 pupils are required to select a major shop in which to specialize. Instruction in this selected shop is supplemented by instruction in a number of related shops. In the case of most major shops, drafting is a related shop. In grade 12 pupils continue their course on the specialized plan set up in grade 11.

In some schools students who have completed an industrial course with a standing satisfactory to the principal may proceed to Grade 13 to qualify for admission to university, provided they have achieved the necessary standard up to Grade 12 level in the required university entrance subjects. A few exceptional students take advantage of this opportunity to qualify for university entrance and go on to higher education, but the majority enter employment from the Grade 10, 11 or 12 level.

Modifications of this four-year industrial course are offered in some schools. One is a two-year terminal course at Grades 9 and 10 level. Half the student's time is devoted to academic subjects and half to shop work. The first year is exploratory and the second is specialized in one chosen trade. Upon completion, the student is granted an Intermediate Certificate and may transfer to the four-year industrial course, with one year's credit. The other is a one-year special industrial course in which 25 per cent of the student's time is devoted to academic subjects and 75 per cent to shop work. To be eligible for admission to this special course a student must have successfully completed three years of a secondary school course other than the industrial course. A secondary school graduation diploma may be granted upon the successful completion of this one-year special course.

A teacher of an industrial subject must have acceptable journeyman's experience in the trade taught, must pass a trade test, and must hold a Vocational Certificate obtained after a one-year teacher training course at the Ontario College of Education. Teachers may qualify by attending in-service teacher training courses after initial employment.

Vocational and composite schools are using their facilities close to capacity. There is a steady annual increase in enrolment and in centres where industrial courses are offered, the increase in these courses is slightly more rapid than the increase in total high school enrolments.

Secondary school boards have adopted a building program designed to provide adequate facilities for future enrolments in industrial courses. In some areas new facilities are being provided, in others the present facilities are being expanded.

Although the stated objectives of the industrial courses in secondary schools include specialized basic training in selected industrial trades there appears to be a trend toward placing greater emphasis upon the general educational aspects of the courses, especially on mathematics and science, and a reduction of emphasis on the specialized shop training. In one or two schools with industrial courses, authority has been given to reverse the ratio of time devoted to vocational and academic subjects, so as to increase the shop work in Grades 9 and 10 and thereby permit more time in language, mathematics, science, etc., in Grades 11 and 12.

Trade and Industrial Courses

The only facilities providing short-term trade courses are in the provincially operated Institute of Trades in Toronto. This Institute is operated by the Department of Education primarily for apprentices referred by the Department of Labour. As a secondary function it offers industrial trade courses in non-apprenticeable trades as specific needs arise; for example it may provide courses for members of the armed forces.

These facilities are not used to capacity partly because most of the accommodation has been recently built and partly because the enrolment of apprentices has been decreasing during the past few years. There are no plans for expansion except to add to the range of courses offered.

Some trade courses of 40 weeks' duration or units thereof are offered including barbering, diesel mechanics, sanitary inspection, watchmaking and welding but enrolment in these courses is small; in 1956-57 it totalled 114.

Courses for apprentices are organized for those registered with the Apprenticeship Branch of the Department of Labour. These apprentices attend classes for ten weeks during two of the four or five years of apprenticeship. Training is available in bricklaying, carpentry, electrical construction, metal lathing, motor vehicle repair, painting, plumbing, sheet metal working, steamfitting, structural steel drafting and detailing, and plastering.

The courses are highly practical in character with some related instruction in language, mathematics, science and business.

No fees are paid by apprentices for courses at the Provincial Institute of Trades. The cost of their training is paid to the Department of Education by the Department of Labour, which also pays a living allowance to apprentices attending class. Fees for non-apprentices in full-time classes are currently set at \$125.00 a year for a 40-week course.

Evening Classes

A great variety of part-time evening industrial and technical classes are offered in many centres throughout the province. These fall into two main classifications.

(1) Classes conducted in vocational schools under local advisory vocational committees and those in the Provincial Institute of Trades. These cover a wide range of academic, cultural, hobby and trade courses. Sixty to seventy thousand persons have enrolled yearly in these classes, with approximately 30 per cent in industrial or trade courses. These industrial courses are for persons employed in the related trade or for persons who wish to prepare themselves for such employment.

(2) Advanced evening technical courses offering a program of study at the post-high-school level to enable persons employed in industry to prepare themselves for advancement. Admission requirements include completion of Grade 12. Courses of study are standardized and lead to Departmental Certificate for successful completion.

A complete course consists of four compulsory subjects (mathematics I, mathematics II, mechanics I and English I) and five optional subjects from the following: applied electricity, applied heat, electronics I, industrial chemistry, instrumentation, machine design, mechanics, metallurgy, strength of materials, technical drawing or theory of machines. Each subject extends over 50 hours of class work.

Advanced technical evening classes are currently offered at the following centres: Belleville, Brockville, Galt, Guelph, Hamilton, Kingston, Kitchener-Waterloo, Lake Head Technical Institute, Niagara Falls, Northern Technical and Commercial School (Toronto), Ottawa, Peterborough, Ryerson Institute of Technology (Toronto), Sault Ste. Marie, Sarnia, St. Catharines, Welland and Windsor.

Fees vary considerably from \$5.00 to \$20.00 per subject. During the 1956-57 term more than 1,400 students were enrolled in these classes.

Correspondence Courses

The Correspondence Study Branch of the Department of Education has established vocational correspondence courses in auto mechanics, carpentry, machine shop practice, and radio. These courses are available

at nominal fees to any resident of Canada through a reciprocal agreement between the various provinces and the federal Government which provides that each province will make available its vocational correspondence courses to residents of other provinces on the same basis as to its own residents.

MANITOBA

Three high schools operated by local boards in Winnipeg, Brandon and Flin Flon, and the Manitoba Technical Institute in Winnipeg, operated by the Department of Education, provide the industrial training facilities in Manitoba. No post-high-school program exists in the province. All the courses at the Manitoba Technical Institute are in the trade and industrial category but plans are being discussed to build a new trade and technical institute to include courses at the post-high-school level.

High School Courses

The Technical Vocational High School in Winnipeg, operated by the municipal school board, offers the broadest industrial program of the three high schools with industrial shop facilities. The regular industrial high school course requires completion of Grade 9 as a prerequisite for admission. It is a three-year course, half the time being spent in the shop or laboratory and the other half on academic subjects, including mathematics, science, history, geography, health and language. Graduates of this course receive a certificate from the Department of Education and may qualify for entrance to university by selecting the required academic subjects and achieving a satisfactory standing in Grade 11 examinations.

Two other industrial courses are available to high school students. One is a three-year high school leaving course for students who do not meet the academic standards of the regular industrial course; the final certificate is awarded by the school. This course also requires that 50 per cent of the student's time be spent in the shop and 50 per cent on academic subjects but the academic work does not qualify for university entrance and is more closely related to industrial and commercial activities. The other is a terminal course for graduates of the academic Grade 11 or 12 course. This is full-time training in the chosen occupation and no academic work is given except for related technical theory. These terminal courses require 10 to 15 months of shop training.

The object of the regular industrial high school course is to provide a complete senior high school education in academic subjects and an extensive training in the skills and theory of a chosen occupation. The high school leaving course and the terminal courses are more vocational in objective and do not place the same emphasis on the academic standing of the studies.

The Winnipeg Technical Vocational High School charges an annual student fee of \$5.00 for residents of the city of Winnipeg and \$300.00 for non-residents.

The following industrial shop facilities are provided:

Winnipeg Technical Vocational High School - automotive mechanics, machine shop, sheet metal, welding, woodworking, electricity, drafting, graphic arts, cooking, and commercial art.

Brandon High School - Automotive mechanics, woodworking, drafting, machine shop.

Flin Flon High School - Automotive and machine shop.

Students of the industrial high school courses enter their shop specialty in the first year, except in the metal trades where the first year includes machine shop work, sheet metal working, and welding; during the last two years they specialize in any one of these.

Teachers of shop subjects are required to have junior matriculation or the equivalent, trade qualifications, and one year of teacher training. The equivalent of teacher training may be obtained before employment or through four summer school sessions provided by the Department of Education for teachers who are not fully qualified.

Trade and Industrial Courses

The Manitoba Technical Institute located in Winnipeg is operated by the Department of Education with financial assistance from the federal Government through the terms of agreements under the Vocational Training Co-ordination Act. Industrial courses of up to one year are provided for:

- (1) fee paying students in pre-employment courses;
- (2) apprentices referred by the Department of Labour;
- (3) unemployed persons referred by National Employment Service; and
- (4) physically handicapped persons requiring training as an aid in vocational rehabilitation.

The following industrial courses are provided for fee-paying students, students referred by National Employment Service, and physically handicapped students:

Architectural Drafting (8-10 months)
Machine Drawing (8-10 months)
Auto Body Repair (8 months)
Automotive Mechanics (8 months)
Diesel Mechanics (10 months)
General Electrical Course (10 months)
Electrical Appliance Repair (7 months)
General Woodworking (8 months)
Refrigeration and Air Conditioning (10 months)
Machine Shop Practice (10 months)
Oxy-Acetylene Welding (3 months)
Electric Arc Welding (3 months)
Power Plant Engineering (12 months)
Radio Operators (10 months)
Radio Servicing (10 months)
Television Servicing (4 months)

Entrance requirements for different courses vary from Grade 8 to Grade 12. All students must be 16 years of age or over. Fees are \$15.00 for residents of Manitoba and \$30.00 for non-residents, for each quarter year or fraction thereof. The only exception to this schedule is the welding courses where the fee is \$50.00 per quarter.

An interesting feature of the requirements for graduation from these courses is that a student must complete six months' satisfactory employment in the occupation after completion of the course before he is eligible for a certificate.

The study of related subjects includes instruction having specific application to the selected trades in the field of science, mathematics, trade literature, safety and health, and blueprint reading. The requirements for related study vary with the trade and are "designated to supplement and extend development of manipulative skill in the shop".

For each course extensive use is made of advisory committees which include representatives from management and labour as a "directing influence in helping the Institute to keep its program of studies up to date and closely related to changing industrial practices".

The Department of Education provides school training for apprentices at the Manitoba Technical Institute. These classes are planned according to specifications of the Department of Labour under whose jurisdiction the apprenticeship program is administered. The courses are of two types: pre-apprenticeship classes and full-time annual classes for indentured apprentices.

Pre-apprenticeship classes, which last from six to seven months, are for young persons between the ages of 16 and 21 selected by the Apprenticeship Branch of the Department of Labour for placement as apprentices in designated trades following completion of the course.

Regularly indentured apprentices are required to attend three sessions of full-time day classes during the term of apprenticeship. The junior course is six to eight weeks; the intermediate course, six weeks, and the senior course, four weeks. Courses are offered in auto repair mechanics, auto body repair, sheet metal working, refrigeration, plumbing, painting and decorating, carpentry, factory woodworking, plastering, bricklaying, electrical construction, motor winding and steamfitting.

Enrolments at the Technical Institute exceed 750 at peak periods of the year; slightly more than 70 per cent are in industrial courses. There are capacity enrolments in most classes and in some trades there is a waiting list of fee-paying applicants.

Evening Classes

Evening classes for adults are offered at the Manitoba Technical Institute and in many of the high schools throughout the province. These are of 40 weeks' duration and may be upgrading or pre-employment in nature. Many of the classes are in trade and industrial occupations while others, especially in the high schools, are non-vocational. The level and type of training varies each year depending upon the needs of the group enrolled.

Correspondence Courses

Manitoba does not provide its own vocational correspondence courses. However, the Department of Education does co-operate with the other provinces through the federal-provincial Vocational Correspondence Courses Agreement in providing vocational courses from the other provinces to Manitoba residents. The department also has arrangements with certain private schools for vocational correspondence courses at rates well below the regular price.

SASKATCHEWAN

Industrial courses in Saskatchewan are offered at the high school level by several municipalities in composite and technical high schools, and at the trade level by the Department of Education in the Canadian Vocational Training school at Saskatoon. There are no post-high-school industrial courses at present but plans are being discussed for a new trade and technical institute in which a broader program will be offered by the Department of Education.

Technical High School Courses

The three technical high schools in Regina, Moose Jaw and Saskatoon offer four-year industrial courses from Grade 9 through Grade 12. These courses include the same compulsory subjects as the collegiate courses (literature, composition, social studies, mathematics, and science) but differ in the optional subjects. A high school graduation diploma is granted for successful completion of the technical four-year course.

The objective of the technical school courses is industrial employment following training in trade skills and theory and a basic high school education. However, to qualify for university entrance a technical school student may carry the extra academic subjects required for matriculation along with the vocational subjects, or may return for these subjects after graduation.

No straight academic courses are offered at these technical schools but commercial courses and, at Saskatoon an art course, are offered as well as the industrial courses.

In each of the three technical high schools, industrial courses are offered in drafting, woodworking, machine shop work, electricity, motor mechanics and welding; at Moose Jaw auto body repair and radio servicing are also offered.

(Special courses are offered to other than high school students. These are short-term courses of varying lengths for fee-paying students who wish special training in specific phases of the shop courses offered by the school.)

Approximately one-third to one-half of the students who enter Grade 9 continue through Grade 12. There has been no significant change in this proportion in the past ten years. More than 30 per cent of those enrolled in the three technical high schools are in industrial courses.

The schools are operated by the respective municipal school boards with the advice of vocational education committees. The curriculum is supervised by the Department of Education, which provides financial grants to the local boards.

Teachers must have journeyman qualification or the equivalent in the trade taught and must attend a minimum of two summer sessions of teacher training.

Composite High School

Industrial vocational courses are offered in a number of composite high schools throughout the province. These courses are given in Grades 11 and 12 and include a minimum of two credits in one shop (or in some cases one major and one related shop), one credit in literature, one in composition, one in social studies, one in mathematics, and one in science. A credit is two hours per week. A high school graduation certificate is granted for successful completion of this course.

Many of these composite high schools are in the less densely populated areas and therefore have a relatively small enrolment. Thus the number of students seeking industrial vocational courses is not as great as the number taking a single credit shop option as part of a regular high school course. No statistics are available on the number of actual vocational industrial students in these schools, since many of those in shop

subjects are taking only one credit on a general course and are not separated from students taking two or more credits.

Trade and Industrial Courses

The Canadian Vocational Training School in Saskatoon is operated by the Department of Education and offers, primarily, apprenticeship classes for the Department of Labour. The classes are of short duration - from five to eight weeks - in electricity, plumbing, bricklaying, sheet metal working, carpentry and automotive mechanics. (Non-industrial courses in barbering, hairdressing, farm mechanics, and practical nursing are also offered).

The school is housed in part of a wartime RCAF elementary training school and when a new provincial trade and technical institute is available these classes will form part of the program.

Apprenticeship Trade Advisory committees are used in determining the content of the apprenticeship courses.

Instructors must be qualified tradesmen and are given in-service teacher training; some of the instructors are temporary and work as tradesmen when classes are not in session. Apprenticeship supervisors of the Department of Labour are also sometimes used as instructors.

Plans are now under consideration by the Department of Education for two new courses. One is an electronic course, which will provide general training in this field as well as specialized training for apprentices; the other is a highway technicians course which will begin in January 1958 as an eight-week upgrading course but will develop into a technician's course of approximately two years' duration.

Evening Classes

Part-time evening classes are offered in most of the composite and technical high schools, varying from 20 to 40 hours in duration. Classes are organized when facilities are available and when 12 or more persons enrol. They may be either pre-employment or upgrading in nature, and fees range from \$5.00 to \$25.00 depending on the course.

Correspondence Courses

Saskatchewan provides one industrial correspondence course in oxyacetylene welding. Courses from the other provinces are also available to Saskatchewan residents through the federal-provincial Vocational Correspondence Courses Agreement.

ALBERTA

The province of Alberta offers programs in vocational and technical education and training at the post-high-school, high school, and trade levels. The Department of Education provides a program

of technical training and trade training at the Provincial Institute of Technology and Art in Calgary, and trade training at the Canadian Vocational Training Centres in Calgary and Edmonton. Local municipal school boards in Edmonton, Calgary, Lethbridge, Medicine Hat and Red Deer provide vocational programs in local composite high schools with financial grants from the Department of Education. The apprenticeship program is administered by the Department of Industries and Labour but classes are provided by the Department of Education.

The Provincial Institute of Technology and Art in Calgary was first organized by the Department of Education in 1916 in temporary quarters, but in 1922 the main building of the present Institute was opened. The present campus contains ten buildings, some of which are temporary structures built during the war years when the Institute was used as a training centre for the RCAF. The main building, or Education Building, as it is called, is used jointly by the Institute and the University of Alberta. A new building to be called the East Block is now under construction and will provide 136,000 square feet of additional floor space. Future plans include an addition to the present "B" building to provide 12,000 square feet of shop space, an apprentice shop and office building (76,000 square feet) and a garage building for storage of equipment and supplies.

Post-High-School Courses

The Institute of Technology and Art offers a wide range of trade courses ranging from three weeks' to two years' duration; it is the main centre of post-high-school technical courses in Alberta. These courses are technical in nature and differ in content and purpose from those of the vocational or trade school, which trains skilled artisans, and from those of the engineering college, which trains professional engineers. Their purpose is to prepare individuals for various technical positions within the field of engineering, but the scope of the training program is more limited than that required to prepare for a career as a professional engineer. They are based upon principles of science and include sufficient post-high-school mathematics to enable the student to accomplish the technical objectives of the course.

The following courses are considered by school authorities to be post-high-school in content; aeronautical engineering, architectural drafting technology, land surveying technology, aircraft maintenance technology, construction technology, drafting technology, industrial electrical technology, industrial laboratory technology, mechanical technology, radio and electronic technology. These are two-year courses, except aeronautical engineering which is a three-year course.

A fee of \$51.00 a year is charged for all technical courses, except aeronautical engineering and aircraft maintenance where the fee is \$66.00 a year.

Twenty-six scholarships and awards are listed in the Institute Calendar and, in 1956, it is reported that a total of \$3,506.00 was distributed to students in prizes and awards. Most of these awards are offered by industrial firms.

The number of applicants for some courses exceeds the space available. All facilities are used to capacity, and the great demand for training has resulted in careful screening of applicants, generally on the basis of academic attainment in their high school courses. Furthermore there has been, in some cases, a demand by industry for technicians with more advanced training, particularly in mathematics. Institute courses are therefore being continually revised upward in line with the rapidly advancing technologies.

Advisory committees are not organized for all courses but great credit is given to the influence and assistance of those already organized in the following departments: aeronautical engineering, architectural drafting, construction technology, drafting technology, industrial laboratory technology, and industrial electrical technology.

These committees act as a liaison between industry and the Institute, advise with respect to curriculum and course content, and foster interest in industry for graduates of the course.

The instructional staff in mathematics, physics, chemistry, the various technologies, drafting and English are university graduates, or the equivalent with preferably some experience in industry. Instructors in shop subjects are journeymen tradesmen with not less than four years' industrial experience and some supervisory experience. All new appointees are required to take an in-service teacher training course. Some of the instructors are professional teachers. In order that Institute instructors may keep abreast of technological progress, arrangements are made with appropriate industries for instructors to gain valuable industrial experience during non-teaching months. Liaison is also maintained with professional organizations and societies by attendance at meetings and conventions.

Discussions are now under way with the petroleum industry in Alberta concerning the establishment of a course for petroleum technicians at the Institute of Technology.

High School Courses

The high schools in Alberta are divided into junior high schools (Grades 7, 8 and 9) and senior high schools, (Grades 10, 11 and 12). A broad industrial arts program is provided at the junior high school level, and in senior high school vocational courses are provided as optional subjects in the regular high school course. Only one high school graduation diploma is granted covering the matriculation course and the general vocational courses. To secure this diploma certain obligatory courses must be completed. These are language, literature, social studies,

health and personal development, and physical education. In addition one high school mathematics course and one science course must be completed. Students may elect additional courses from a wide range of options to complete the high school program. Those going to university will elect courses required for university entrance and follow a matriculation program. Those not planning on a university course may elect a program of commercial or industrial courses depending upon their objective.

Within the province eight composite high schools with shops provide courses in industrial trades; these are:

1. Crescent Heights Composite High School in Calgary
2. Western Canada High School in Calgary
3. Eastglen Composite High School in Edmonton
4. Victoria Composite High School in Edmonton
5. Strathcona Composite High School in Edmonton
6. Lethbridge Technical High School
7. Medicine Hat Alexandria High School
8. Red Deer Composite High School

The standard trade subjects offered in these schools are automotive mechanics, carpentry, electricity, metalworking (machine shop and sheet metal). Vocational students spend at least 50 per cent of their time in the shop and in related subjects such as drafting, mathematics and science. The other half of their time is spent on academic subjects.

The number of students taking shop courses decreases sharply from Grade 10 to grade 12. For example, in Edmonton in 1956 there were 249 students taking electricity in Grade 10, 72 in Grade 11 and five in Grade 12. In the automotive trade the corresponding figures were, Grade 10 - 495, Grade 11 - 144 and Grade 12 - 38. Many of those who drop out are students following a matriculation program and who discontinue their shop subjects in Grades 11 and 12 to concentrate on matriculation courses. Many of course leave school to take employment before reaching Grade 12.

Employment opportunities are good for graduates from these schools and most of them become employed in the trade they chose at school. Students who have successfully completed a unit shop course in Grades 10, 11 and 12 of the Alberta High School program with the required standing may receive credit for the first year of the comparable two-year trade course at the Provincial Institute of Technology at Calgary.

The basic principles underlying the high school program in Alberta are:

1. Personal development or self-realization.
2. Growth in family living or human relationships.
3. Growth towards competence in citizenship or civic responsibility.
4. Occupational preparation or economic efficiency.

There appears to be a trend towards a reduction in the emphasis on the purely vocational nature of high school shop courses and an increase in the emphasis on shop subjects in a general high school program.

All the composite high schools are operated by municipal school boards but the Department of Education reimburses the municipality a portion of the costs of establishing and operating shop courses in accordance with regulations under the School Grants Act. The province, in turn, may claim a portion of their grants from the federal Government under the terms of federal-provincial agreements.

No advisory committees are used for trade courses at the high school level. The Department of Education provides curriculum guides which form the basis of instruction in the high school.

Trade and Industrial Courses

Apart from the post-high-school and high school programs outlined above, the Department of Education provides a number of full-time shorter-term trade and industrial courses under the various federal-provincial Agreements. These are offered mainly at the Provincial Institute of Technology and at the Canadian Vocational Training Centre in Calgary.

At the Institute of Technology the following trade courses are provided as a regular part of the Institute program:

- Automotive Mechanics (2 years)
- Diesel Mechanics / (20 weeks)
- Refrigeration and Appliance Servicing / (1 year)
- Welding (special 3-week courses)
- Tractors (10 weeks)

As in the case of other Institute courses these are for fee-paying students. The fees vary in amount for the various courses.

At the Canadian Vocational Training School in Calgary courses are provided for apprentices in bricklaying, painting, plastering, plumbing, steamfitting, and welding. A course for wheeled vehicle mechanics is provided for the Canadian Army by the Department of Education at this school, the total cost being borne by the federal Government.

Apprenticeship classes at the Institute of Technology include auto body repair, carpentry, electricity, motor mechanics, refrigeration and sheet metal working.

Plans are being considered to construct a new trade school in Edmonton which will accommodate the program now carried on in the Canadian Vocational Training School in Calgary and to relieve some of the pressure of the apprenticeship program at the Institute of Technology.

Evening Classes

Evening courses are offered by the Department of Education at the Institute of Technology and by some municipal school boards in the composite high schools. At the Institute, the evening classes are mainly in the trade and industrial fields and are designed to assist those already in industry by supplementing their practical work with instruction in the technical and theoretical branches of their vocation.

The following trade improvement course program is listed for 1957-58 at the Institute of Technology:

<u>COURSE</u>	<u>DURATION</u> (Hours)	<u>FEES</u>
Aircraft Riveting	72	\$ 26.00
Automatic Transmissions	72	21.00
Blueprint Reading	72	20.00
Carpentry, I, II and III	72	21.00
Concrete Technology	39	16.00
Diesel Mechanics	72	26.00
Drafting - General	72	25.00
- Architectural	72	25.00
- Mechanical	150	45.00
- Sheet Metal	72	25.00
- Structural Steel	150	45.00
- Survey	72	25.00
Electricity	72	21.00
Elementary Metallurgy	30	15.00
Machine Shop	72	26.00
Motor Tune-up	72	21.00
Oil Chemistry	72	21.00
Photogrammetry	72	20.00
Radio	72	26.00
Refrigeration	72	20.00
Steam Engineering	72	20.00
Television Receivers	72	20.00
Welding	72	45.00
Wheel Alignment	72	21.00

The Edmonton School Board provides an evening program at the Victoria Composite High School in the following trades: radio servicing, machine shop practice, welding, automotive mechanics, steel square and roof framing, drafting and electrical theory. These courses are of 80 hours' duration, and are primarily for the upgrading of persons already employed in the occupation. However, radio servicing, machine shop practice, welding, and automotive mechanics may be taken by persons who are employed in other fields and who wish to change their trades. Several other municipalities offer an evening school program but courses are mainly in homemaking and the industrial arts.

Correspondence Courses

The Institute of Technology and Art in Calgary includes a vocational correspondence study division offering courses in power plant engineering, mathematics and mining. The power plant engineering course includes study required for first, second, third and fourth class certificates. The mathematics course is related to the power plant engineering course in that it provides upgrading in practical mathematics required by those who are taking the power plant courses. The mining course is available only to persons wishing to study by themselves, with no correction or examination service by the Institute, the subject material only being supplied. The power plant engineering and the practical mathematics courses are offered to persons from any part of Canada as well as to residents of Alberta in accordance with the federal-provincial Vocational Correspondence Courses Agreement.

BRITISH COLUMBIA

Vocational courses at the senior high school level in composite and technical high schools are the basis of the vocational education program in British Columbia. These courses are operated by municipal school boards but are closely controlled by the Department of Education through specifications and regulations with which the municipalities must comply to become eligible for financial assistance from the provincial government. These provincial grants are shared by the federal Government under the terms of the various federal-provincial agreements on vocational education.

This policy of municipal control with financial assistance from the province applies also to the Vancouver Vocational Institute, operated by the Vancouver School Board, and offering trade, industrial, and technical courses in the trade and post-high-school categories.

The provincial Department of Education operates a trade school at Nanaimo, is constructing another trade school at Burnaby, and is planning a third trade school at Prince George. It appears therefore that in the future the province will continue to assist the municipalities in providing vocational courses at the high school level but will offer trade and technical courses in provincial schools.

Post-High-School Courses

There is no organized post-high-school technical program in British Columbia, but the Vancouver Vocational Institute offers courses in drafting, electronics, electricity and industrial electronics, stationary and marine engineering and marine navigation which require the study of mathematics and science beyond the high school level. No doubt more post-high-school courses will be developed in the future because of the desire on the part of the department to provide an opportunity for young people of the province to develop to the extent of their capacity, and to meet the manpower needs of industry.

High-School Courses

The composite high schools in British Columbia provide a range of courses including matriculation, matriculation with industrial arts, matriculation with vocational options, and straight vocational courses in industrial, commercial and agricultural subjects.

The vocational industrial courses are given in Grades 10, 11 and 12. In Grade 10 the program is exploratory and requires the vocational students to take two or more different trade shop subjects. In Grades 11 and 12 the student concentrates on the one trade of his choice. This general pattern varies somewhat in the Vancouver Technical High School. Here junior and senior high school grades are included in the school and the exploratory work is done in Grade 9. In the later senior high school grades, the students may specialize, but even in Grade 12 may elect to take two trades provided they are related, e.g., machine shop and foundry work, or carpentry and drafting.

In all the approved high school industrial courses, students must spend at least half their time in shop and related subjects. The related subjects are mathematics and science, including both physics and chemistry, and drafting.

Industrial courses are offered at the Victoria High School, the Lester Pearson Senior High School in New Westminster, the J. Lloyd Crowe High School in Trail, and the Nanaimo High School, in automotive mechanics, carpentry, electricity, machine shop practice, and sheet metal work. In addition to these courses the Vancouver Technical High School offers drafting, printing, and foundry.

The following schools offer one course each: Como Lake High School (carpentry); Kelowna High School (automotive mechanics); North Vancouver High School (machine shop practice); King Edward High School, Vancouver (wireless communication).

All facilities in the composite high schools are used to capacity and plans are underway to expand some of the present shops and to add industrial vocational courses to three other high schools in the Vancouver area.

Although the vocational high school program is operated by the municipal school boards, the shop courses, facilities, and teachers, must be approved by the Department of Education. Industrial courses must provide practical as well as theoretical training in a single specified field leading to occupational competency and to direct entry into employment,

Vocational teachers must be skilled in the occupation taught and have a minimum of Grade 12 education. They must also complete a prescribed program of teacher training at the provincial summer school of education or at the vocational teacher training courses held in the Vancouver Vocational Institute.

Advisory committees with industrial representation are used when a new course is being drawn up but they do not function on a continuing basis in the vocational high school program.

Trade and Industrial Courses

Other trade and industrial courses are offered at the Vancouver Vocational Institute operated by the Vancouver School Board, the federal-provincial school at Nanaimo, operated by the Department of Education, and a temporary school at the exhibition grounds in Vancouver operated by the Vancouver School Board for the Departments of Labour and Education.

The Vancouver School Board offers a wide range of trade courses varying in length from 10 weeks to 12 months. They are located at the Vancouver Vocational Institute and at the exhibition grounds, and designed for:

1. Students who have completed their high school education, and who wish to take short, intensive, practical courses before entering desired trades.
2. People who require upgrading in their own particular trades.
3. People who, because of injury or lack of interest in their present occupations, wish to rehabilitate themselves in some new line of endeavour.
4. New Canadians who wish to familiarize themselves with local conditions and methods before seeking employment.

Applicants for training must be at least 16 years of age and have a minimum of Grade 10 education or its equivalent; Grade 12 education is preferred for some trades.

All courses are practical in nature, but all practice is supplemented by the necessary mathematics and trade theory.

Each trade or occupation taught in the Institute has its own advisory committee, consisting of representatives of labour and management.

Fees range from \$15.00 to \$40.00 a month depending on the length and nature of the course.

The following trade or industrial courses are offered: auto body repair, auto mechanics, carpentry, diesel and gas engine operation and maintenance, electricity, machine shop work, plumbing and heating, and welding (general and upgrading).

(Barbering, beauty culture, chef training, commercial subjects, power sewing, practical nursing and shoe repair are also offered).

Special classes are provided for registered apprentices referred by the Department of Labour for the school part of their program. These are blueprint reading, plumbing, pipefitting, metal lathing, painting and decorating, plastering, bricklaying, carpentry, steel fabrication and boilermaking, patternmaking, auto body repair, auto mechanics, electricity, machinist, sheet metal working, refrigeration, steamfitting, boat building, and joinery.

Training facilities at the Vancouver Vocational Institute are used to capacity, some courses operating in temporary quarters outside the regular school buildings. A new course for aviation mechanics which began in October 1957 is located temporarily at the Pacific National Exhibition Grounds. This course is an interesting experiment in co-operative training in that students spend eight months in school, four months in employment and then return to the school for an additional eight months. It has been established in co-operation with the local aviation industry. Some of the apprenticeship classes are also offered at the exhibition grounds.

The Department of Education is operating a trade school at Nanaimo in a war-time camp. This school provides lodging and meals for the students in former army barracks. Courses are offered in:

- Heavy Duty Mechanics (diesel and gas) (6 to 9 months)
- Automotive Mechanics (6 to 9 months)
- Bulldozing (8 to 10 weeks)
- General Welding (5 to 6 months)
- Pressure Welding, upgrading / (1 to 6 weeks)
- Pipeline Welding, upgrading / (1 to 6 weeks)

The first unit of a new provincial trade school should open in 1958 at Burnaby. This unit will provide modern facilities for the program that is now being operated in temporary quarters at the Pacific National Exhibition Grounds by the Vancouver School Board. Plans are also being considered for a similar provincial school at Prince George.

The apprenticeship program in British Columbia is administered by the Apprenticeship Branch of the Department of Labour. Class training is provided in existing or in special classes through co-operation with the Department of Education and the local school boards.

Curriculum Development

The Department of Education in co-operation with the Department of Labour has established a Curriculum Development Section with a full-time staff to develop and detail courses of study in the various trades. As these courses are completed they become the basis of training for that trade in all schools of the province. Extensive use of advisory committees from industry is made in developing these courses. It is expected that this

section will be on a continuing basis in order to keep all courses up to date and in line with advances and changes in industry.

Evening Classes

An extensive evening class program is operated in 44 centres in the province. These are operated by the municipal boards with grants paid to the municipality by the Department of Education. In 1956-57 the province paid \$75,000 in grants to municipalities which provided classes for more than 11,000 students. Approximately 41 per cent of these were in industrial subjects.

Correspondence Courses

Through its Department of Education British Columbia provides a very wide service in correspondence courses, mainly academic and non-vocational. Approximately 3 per cent of the correspondence students are studying industrial courses. These provide good instruction at reasonable fees, not only for residents of British Columbia, but, as in the other provinces, for students anywhere in Canada, through the federal-provincial Vocational Correspondence Courses Agreement.

YUKON AND NORTHWEST TERRITORIES

A start has been made in the last few years to provide vocational training to residents of the Territories, under the Education Division of the Northern Administration and Lands Branch of the federal Department of Northern Affairs. Normally the white residents are the responsibility of the territorial commissions, the Indians are the responsibility of the Department of Citizenship and Immigration, and the Eskimos are the responsibility of the Department of Northern Affairs. Any training facilities and courses provided, however, are available for all three groups and are administered by the Department of Northern Affairs.

Most of those trained up to the present have gone to one or other of the western provinces for their instruction, but a few courses of short duration have been operated in the Territories, mainly in the MacKenzie District. Very little has been done in the Yukon or the eastern arctic.

A continuing course for heavy equipment operators is given at Leduc but other courses have been set up temporarily for a particular job opportunity. The objectives of such courses are to prepare students for jobs in the area or to provide a try-out course before sending students out to a provincial school or institution.

Students are given free tuition, and are granted a living allowance, transportation costs, and, when necessary, a clothing allowance.

The first school providing academic and vocational courses is expected to open in Yellowknife in September 1958. Courses in the

mechanical trades and building construction will be offered.

Many difficulties face those responsible for the establishment of industrial courses in the Territories. The general level of education is low, many residents do not speak English, the population is spread thinly over wide areas, transportation is difficult and expensive and qualified instructors are difficult to obtain. Yet the authorities have found that the Eskimo in particular has a high degree of mechanical aptitude and with adequate background and training becomes a self-sufficient, competent workman. The program therefore may be expected to expand in the future, first to improve the general education of the residents and second to provide skilled workers for federal projects and other industrial activities in the area.

A P P E N D I X A

SAMPLE POST-HIGH-SCHOOL PROGRAMS

1. Provincial Institute of Technology and Art.
Calgary, Alberta.

Program of Studies
Radio and Electronics Technology
Duration 2 Years

<u>Subject</u>	<u>Hours per Week</u>
<u>First year</u>	
First semester	
Electrical and radio lab.....	12
Electrical and radio theory.....	10
Mathematics.....	3
Drafting.....	3
English and economics.....	2
Second semester	
Radio receiver lab.....	12
A. M. receiver servicing theory.....	4
Audio theory.....	2
Instrument theory.....	4
Mathematics.....	3
Drafting.....	3
English and economics.....	2
Third semester	
Radio servicing lab.....	12
A. M. receiver servicing theory.....	4
Audio theory.....	2
A. M. transmission theory.....	4
Mathematics.....	3
Drafting.....	3
English and economics.....	2
<u>Second year</u>	
First semester	
Instrument theory.....	2
Instrument lab.....	6
J.H.F. theory and lab.....	3
Television receiver theory.....	5
Television receiver lab.....	3
Drafting.....	2
Science.....	3
Mathematics.....	4
English.....	2

APPENDIX A - Continued

Hours per Week

Second semester

Television receiver theory.....	2
Transmission lab.....	3
Frequency modulation theory.....	2
Television broadcast theory.....	2
Television receiver lab.....	9
Antenna theory.....	2
Electronic mathematics problems.....	3
Drafting.....	2
Science.....	3
English.....	2

Third semester

U.H.F. theory and lab.....	4
Television receiver lab.....	6
Color television theory.....	1
Frequency modulation lab.....	3
Electronic mathematics problems.....	2
Industrial electronics theory and lab.....	7
Drafting.....	2
Science.....	3
English.....	2

2. Ryerson Institute of Technology,
Toronto, Ont.

Program of Studies
Electronic Technology
Duration 3 Years

<u>Subject</u>	<u>Lectures</u>	<u>Lab</u>
<u>First year</u>		
Electrical fundamentals.....	6	-
Physics.....	4	4
Electron tubes.....	1	2
Electrical drafting and workshop practice.....	-	3
Mathematics.....	5	-
English.....	3	-
Physical education.....	-	2
<u>Second year</u>		
Alternating current.....	4	-
Physics.....	1	2
Pulse circuits.....	4	2
Radio circuits.....	4	2
Mathematics.....	4	-
English.....	3	-
Economics.....	2	-
Physical education.....	-	2

APPENDIX A - Concluded

	<u>Lectures</u>	<u>Lab</u>
<u>Third year</u>		
Physics.....	2	2
Communications.....	4	4
Television.....	3	4
Pulse circuit applications.....	2	1
Applied electricity.....	1	-
Mathematics.....	4	-
English.....	3	-

3. Department of Youth and Social Welfare.
Quebec, P.Q.

Program of Studies
Electronic Technology
Duration 3 Years

<u>Subject</u>	<u>Hours per week</u>			
	<u>1st year</u>	<u>2nd year</u>	<u>3rd year</u>	
			<u>1st</u> <u>sem.</u>	<u>2nd</u> <u>sem.</u>
Algebra.....	2	2	-	-
English.....	2	2	1	1
Chemistry.....	2	3	-	-
Sketching.....	1	-	-	-
Drafting.....	4	4	-	-
Electrical theory.....	5	-	-	-
French.....	2	2	-	-
Geometry.....	2	2	3	3
Mechanics.....	1	1	1	1
Physics.....	3	3	-	-
Sociology.....	1	1	1	1
Trigonometry.....	1	-	-	-
Theory and shop practice.....	9	15	21	21
Heat.....	-	-	1	-
Business practice.....	-	-	2	2
Economic history and geography.....	-	-	1	1
Industrial legislation.....	-	-	-	1
Mathematics.....	-	-	2	1
Refrigeration.....	-	-	-	1
Strength of material.....	-	-	2	2

A P P E N D I X B

SAMPLE HIGH SCHOOL COURSES

1. New Brunswick Industrial High School Course
Duration - 3 years

<u>Subject</u>	<u>Hours per week</u>
<u>Grade 10</u>	
Health and physical education.....	1
English I, II.....	5
Social studies (history).....	3
Physics.....	3
Shop mathematics.....	5
Shop subjects.....	8
<u>Grade 11</u>	
Health and physical education.....	1
English I, II.....	5
Social studies (history).....	3
Physics.....	3
Shop mathematics.....	3
Shop subjects.....	10
<u>Grade 12</u>	
Health and physical education.....	1
English II.....	3
Social studies (history).....	3
Shop mathematics.....	3
Review of applied physics and introduction of industrial chemistry (optional).....	3
Shop subjects.....	12 - 15

(Industrial students are required to carry two to three shop subjects in Grade 10 and should then specialize in one subject with related skills in Grades 11 and 12.)

APPENDIX B - Continued

2. Alberta Senior High School Program
Duration - 3 years

(One credit corresponds to thirty-five minutes of instruction time per week. The number of credits a course carries is in direct ratio to the total instruction time it receives in a week. The number in brackets after each subject indicates its credit value.)

Grade 10

Language (5)
Literature (3)
Social Studies (5)
Health and Personal Development (2-5)
Physical Education (2-5)

Grade 11

Constants

Language (5)
Literature (3)
Social Studies (5)

Grade 12

English (5)
Social Studies (5)

Electives

Mathematics (5) (geometry core)	Mathematics (5) (algebra core)	Mathematics (5) (advanced algebra and elementary trigonometry)
Mathematics (5) (business arithmetic)	Mathematics (5) (consumer maths)	Mathematics (3 or 5) (trigonometry and analytical geometry)
Mathematics (5) (shop mathematics)	Science (5) (physical science)	Chemistry (5)
Science (5) (physical science)	Latin (5)	Physics (5)
Biology (3-4)	French (5)	Biology (5)
Record keeping (2-3)	German (5)	Latin (5)
Shorthand (5)	Bookkeeping (5)	French (5)
Typewriting (3-5)	Shorthand (5)	German (5)
Arts and crafts (4-5)	Typewriting (5)	Bookkeeping (5)
Fabrics and dress (4-5)	Office practice (5)	Typewriting (5)
Foods and nutrition (4-5)	Fabrics and dress (4-5)	Business machines (5)
Home economics (4-5)	Foods and nutrition (4-5)	Secretarial (5)
Agriculture (4-5)	Home economics (4-5)	Office practice (5)
Music (3-5)	Music (4-5)	Fabrics & dress (5)
Art (3-5)	Art (4-5)	Foods & nutrition (5)
Dramatics (3-5)	Dramatics (4-5)	Music (4)
Woodwork (4-5)	Physical educ. (2-5)	Economics (4)
Metalwork (4-5)	Law (3)	Woodwork (10 or 15)
Electricity (4-5)	Psychology (3-4)	Metalwork (10 or 15)
Automotives (4-5)	Sociology (3-4)	Electricity (10 or 15)
Printing (4-5)	Drafting (3)	Automotive (10 or 15)
	Woodwork (8 or 10)	
	Metalwork (8 or 10)	
	Electricity (8 or 10)	
	Automotive (8 or 10)	
	Printing (8 or 10)	

APPENDIX B - Continued

Minimum requirements for high school diploma:

(a) 46 credits in prescribed constants as follows:

Language - Grades 10 and 11	10 credits
Literature - Grades 10 and 11	6 "
English - Grade 12	5 "
Social studies - Grades 10, 11, 12	15 "
Health and personal development Grade 10	2-5 "
Physical education - Grade 10	2-5 "

- (b) 56 to 60 credits in electives (sufficient credits in electives to make a grand total of at least 100 credits)
- (c) Credit in at least one mathematics course.
- (d) Credit in at least one science course.
- (e) Credits in one Grade 12 subject in addition to English and social studies.

3. Ontario High School Industrial Course

Duration - 4 years

<u>Subject</u>	<u>Periods per week</u>
<u>Grade 9</u>	
English.....	6
Social studies.....	6
Physical education.....	4
Mathematics.....	5
Guidance (Occupations).....	2
Science.....	5
Shop work including drafting.....	12
<u>Grade 10</u>	
English.....	7
Social studies.....	5
Physical education.....	4
Mathematics.....	5
Science.....	5
Shop work including drafting.....	14
(Any one of art, music, business practice, or French may be substituted for four periods of shop work)	

APPENDIX B - Concluded

	<u>Periods per week</u>
<u>Grades 11 and 12</u>	
English.....	5
History of industry (Grade 11).....	4
Elements of economics (Grade 12)	
Physical education.....	4
Mathematics.....	5
Science.....	4
Shop work - Major shop.....	10
- Related shops (two).....	8
(Any one of art, music, commercial work, or French may be substituted for four periods of shop work).	

A P P E N D I X - C

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Introduction

This statistical appendix deals with publicly-operated technical and trade training facilities in Canada both at the municipal and provincial level.

To obtain a certain amount of uniformity or comparability, the technical and trade training programs in these publicly-operated institutions covered have been divided into three levels or classifications as follows:

Post-High-School Courses: Courses having a content of mathematics and science beyond that taught up to high school graduation or junior matriculation but not including university courses.

High School Courses: Courses with a definitive occupational objective including the study of high school mathematics, science, languages and social studies, and training in specific trade skills and theory.

Trade Courses: Courses designed to prepare youths and adults who have left the regular school system for entry into employment or to upgrade those already in jobs. The skills of the trade are emphasized as well as trade theory, mathematics and science as required to work effectively in the trade.

These classifications have been accepted by officials of all provinces. They are not free of fault but it is hoped that they will lead in due time to a general agreement on classification of courses.

Detailed statistics are presented for full-time regular courses over a five-year period. The trade level or classification was divided into two parts: the first deals with pre-employment and pre-apprenticeship courses that operate on a full-time basis, usually from six to twelve months; the second covers full-time annual classes for apprentices which usually run from four to twelve weeks during each year of apprenticeship. The apprentice can be said to have received the equivalent class training of the regular pre-employment or pre-apprenticeship trainee only at the end of his three or four years of full-time annual classes.

Apprenticeship training programs are administered by provincial departments of labour. In most cases, however, the class training part of the apprenticeship program is given in a technical or trade school. Such classes are usually operated by the provincial departments of education.

The three key terms used in this statistical appendix are defined as follows:

Enrolment: number of students in a course at a specific time.

Intake: number of students beginning a course during the year.

Graduation: number of students who have successfully fulfilled all the conditions required to obtain a diploma or certificate.

Table 1 - Technical and Trade Training Programs in Canada, 1956-57

PROGRAMS	PROVINCES PARTICIPATING	RESPONSIBLE AGENCIES
POST HIGH SCHOOL (4,753)*	Nova Scotia New Brunswick Quebec Ontario Alberta British Columbia	Department of Education " " Dept. of Social Welfare & Youth Department of Education " " Municipal School Boards
HIGH SCHOOL (25,254)*	Nova Scotia New Brunswick Ontario Manitoba Saskatchewan Alberta British Columbia	Municipal School Boards " " " " " " " " " " " " " " " " " "
TRADE 1. Full-Time Pre-Apprenticeship and Pre-Employment (7,075)*	Newfoundland Nova Scotia Prince Edward Island New Brunswick Quebec Ontario Manitoba Alberta British Columbia Northwest Territories	Department of Education Department of Labour Department of Education " " Youth and Dept. of Social Welfare and/Appr. Commissions Dept. of Education Dept. of Education Dept. of Education Dept. of " & Mun. School Boards Dept. of Northern Affairs
2. Full-Time Annual Apprenticeship Classes (6,358)*	Newfoundland Nova Scotia New Brunswick Ontario Manitoba Saskatchewan Alberta British Columbia	Classes Operated by: Department of Education " Labour " of Educ. & Mun. School Boards " of Education " of Education " of Educ. & Mun. School Boards " of Education " of Education & Mun. School Boards
EVENING 1. Post-High School Subject Enrolments (4,328)	ONTARIO	Dept. of Education and Municipal School Boards
2. Trade (48,887)*	Newfoundland Nova Scotia Prince Edward Island New Brunswick Quebec Ontario Manitoba	Department of Education " " " " " of Ed. & Mun. School Boards " Social Welfare and Youth " of Ed. & Mun. School Boards " " " " "

* Figures in brackets show the numbers participating in each of the programs in 1956-57 in courses or trades covered by this report.

Table 1 - Technical and Trade Training Programs in Canada, 1956-57 - (Concl'd)

PROGRAMS	PROVINCES PARTICIPATING	RESPONSIBLE AGENCIES
2.Trade (Concl'd)	Saskatchewan	Department of Ed. & Mun. School Boards
	Alberta	" " " " "
	British Columbia	Municipal School Boards
	Northwest Territories	Dept. of Northern Affairs
CORRESPONDENCE (Trade)	Newfoundland	Department of Education
	Nova Scotia	" "
	New Brunswick	" "
(4,169)*	Quebec	Dept. of Social Welfare & Youth
	Ontario	Department of Education
	Manitoba	" "
	Alberta	" "
	British Columbia	" "

* Figures in brackets show the numbers participating in each of the programs in 1956-57 in courses or trades covered by this report.

Table 2 - Summary of Participation in Technical & Trade Training Programs in Canada, 1952-1957
(Showing Gross Enrolments and Graduations)

Programs		1952-53	1953-54	1954-55	1955-56	1956-57	Five Year Total of Graduates
Full-Time Post-High School	E	3,010	3,312	3,774	4,227	4,753	4,089
	G	677	674	749	962	1,027	
Full-Time High School	E	20,302	21,554	23,761	24,835	25,254	9,587
	G	a/ 1,445	1,677	2,044	2,178	2,243	
Trade 1. Full-Time Pre-Employment and Pre-Apprenticeship	E	5,781	6,421	6,571	6,849	7,075	10,486
	G	1,769	2,029	1,999	2,252	2,437	
2. Full-Time Annual Apprenticeship	E	3,940	4,986	5,547	5,979	6,358	b/
	G	b/	b/	b/	b/	b/	
Totals	E	33,033	36,273	39,653	41,890	43,440	24,162
	G	3,891	4,380	4,792	5,392	5,707	

a/ Excluding Saskatchewan for which figures were not available; including British Columbia for the last three years only since earlier figures were not available.

b/ There are no graduates as such from apprenticeship classes.

Index of Increase of Enrolment by Year for Each Program
1952-53 = 100

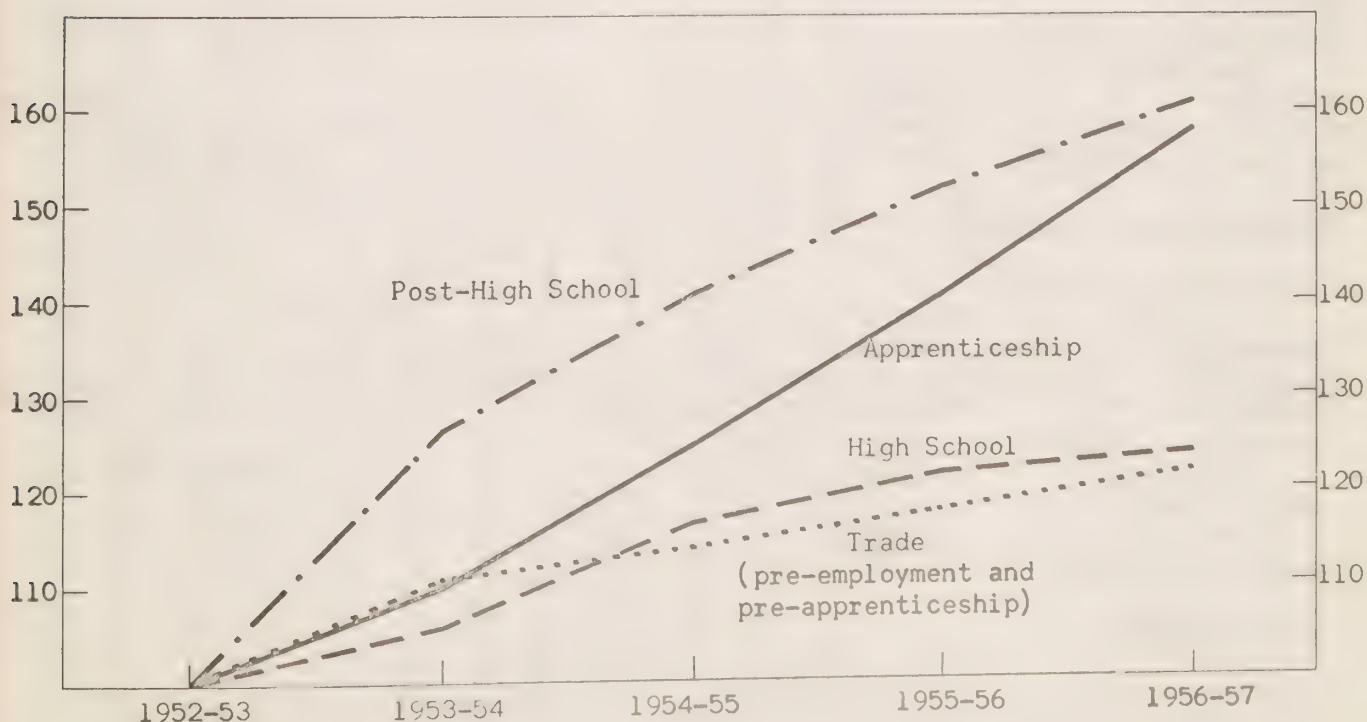


Table 3 - Full-Time Post-High-School Courses In Canada
(Showing enrolment and graduation for 1956-57)

Courses having a content of mathematics and science beyond that taught up to high school graduation or junior matriculation but not including university courses.

ENTRANCE REQUIREMENTS: HIGH SCHOOL GRADUATION OR EQUIVALENT

COURSE AND DURATION (By Field of Specialization)	N.S.		N.B.		QUE.		ONT.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G
<u>AIRCRAFT</u>												
Aeronautical Engineering (3yrs)									18	15		
Aircraft Maintenance Technology (2yrs)									57	13		
<u>BUILDING CONSTRUCTION</u>												
Construction Technology (2yrs)									14	3		
Plumbing & Heating (3yrs)					16	3						
Woodworking (3yrs)					170	34						
<u>CHEMICAL</u>												
Chemical Technology (3yrs)							105	15				
Industrial Chemistry (3yrs)					30	6						
<u>DRAFTING</u>												
Architectural Drafting Technology (2yrs)									29	1		
Drafting (10mos)			6	5								
Drafting General (9mos)											82	37
Drafting Technology (2yrs)									25	2		
<u>ELECTRICAL AND ELECTRONICS</u>												
Electrical & Electronic Tech. (3yrs)							613	115				
Electricity (3yrs)					747	151						
Electronics (3yrs)					481	78						
Electronics (11mos)											52	18
Industrial Electrical Technology (2yrs)									47	17		
Radio & Electronics Technology (2yrs)									74	17		
Radio & Television (10mos)			18	16								
<u>LAND SURVEYING</u>												
Land Surveying (1 yr)	15	15										
Land Surveying Tech. (2yrs)									53	6		

Table 3 - Full-Time Post-High-School Courses In Canada, (Concl'd)

COURSE AND DURATION (By Field of Specialization)	N.S.		N.B.		QUE.		ONT.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G
<u>MECHANICAL AND METAL WORKING</u>												
Mechanical & Metallurgical Technology (3yrs)							244	35				
Blacksmith, Foundry, Machine Shop, Pattern Making (3yrs)					814	181						
Sheet Metal, Welding, Mechanical Technology (2yrs)									5	5		
Mechanical Technology (80wks)			-	-								
<u>TEXTILES</u>												
Textiles (3yrs)					34	8						
Textile Technology (3yrs)							19	3				
<u>MISCELLANEOUS</u>												
Architectural Tech. (3yrs)							169	34				
Automotive (3yrs)					179	20						
Diesel (3yrs)					13	7						
Furniture & Cabinet Making (3yrs)					43	9						
Furniture and Interior Design (3yrs)							42	7				
Graphic Arts (3yrs)					183	40						
Industrial Lab. Tech. (2yrs)									53	14		
Mining Technology (2yrs)							96	56				
Printing Management (3yrs)							63	13				
Pulp & Paper Making (3yrs)					114	26						
Refrigeration (3yrs)					30	2						

There are no post-high-school courses in the provinces of Newfoundland, Prince Edward Island, Manitoba and Saskatchewan or in the Yukon and Northwest Territories.

- indicates nil or zero.

Table 4 - Full-Time High School Courses in Canada
(Showing enrolment and graduation for 1956-57)

Courses with a definite occupational objective including the study of high school mathematics, science, languages and social studies, and training in specific trade skills and theory.

ENTRANCE REQUIREMENTS: In five provinces, the regular high school course is at the level of Grade 10, 11 and 12; in Saskatchewan and Ontario it is at the level of Grade 9, 10, 11 and 12.

COURSE AND DURATION (By Field of Specialization)	N.S.		N.B.		ONT.		MAN.		SASK.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G	E	G
<u>AUTOMOTIVE</u>														
Automotive (4yrs)					..	242			..	..		
" (3yrs)	34	8	..	..			97	5	..	..	1182	69	332	22
Auto Body (4yrs)									..	..		
<u>BUILDING CONSTRUCTION</u>														
Carpentry (3yrs)	67	16	..	..							1595	48	354	46
" & Joinery (3yrs)							22	7						
Carpentry (4yrs)					..	51								
Woodworking (4yrs)					..	80			..	..		
Brick & Tile (2yrs)	18	5												
Heating & Ventilating (3yrs)	34	10												
Painting & Decorating (2yrs)	15	3												
Plumbing (4yrs)					..	7								
" (3yrs)	29	5												
<u>DRAFTING</u>														
Drafting (4yrs)									..	..		
" (3yrs)			..	..			..	..
" Archit. (4yrs)					..	74								
" Mechan. (4yrs)					..	210								
" " (3yrs)	30	3												
<u>ELECTRICAL AND ELECTRONICS</u>														
Applied Electricity (4yrs)					..	280								
Applied Electronics (4yrs)					..	55								
Electricity (4yrs)									..	..		
" (3yrs)	23	4	..	..			93	22			788	27	304	38

.. indicates figures not available.

Table 4 - Full-Time High School Courses in Canada, (Concl'd)

COURSE AND DURATION (By Field of Specialization)	N.S.		N.B.		ONT.		MAN.		SASK.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G	E	G
<u>ELECTRICAL AND ELECTRONICS (Concl'd)</u>														
Radio Operating and Servicing (4yrs)									..	..		
Radio and TV (3yrs)	44	11	..	..								
<u>MECHANICAL AND METAL WORKING</u>														
Machine Shop (4yrs)					..	295			..	..		
" " (3yrs)	27	5	..	..			50	7					347	45
Foundry Practice (3yrs)													22	9
Metal Work (3yrs)											659	42	4	..
General Mech. (3yrs)	38	5												
Pattern Making (Wood) (4yrs)					..	7								
Sheet Metal (4yrs)					..	45								
" " (3yrs)	21	3	..	..			-	-					224	15
Welding (4yrs)					..	16			..	..		
" (3yrs)			..	..			-	-				
" (2yrs)	21	5												
<u>PRINTING</u>														
Printing (4yrs)					..	53								
" (3yrs)			..	..							154	43	50	14
<u>MISCELLANEOUS</u>														
Aircraft Mech. (4yrs)					..	17								
Cabinet Making (3yrs)			..	..								
Electrical and Steam Operating (4yrs)					..	3								
Industrial Chemistry (4yrs)					..	58								
Mining (4yrs)					..	-								
Woodwork-Cabinet Making (4yrs)					..	7								

There are no high school industrial courses in the provinces of Newfoundland, Prince Edward Island and Quebec, or in the Yukon and Northwest Territories.

.. indicates figures not available.

- indicates nil or zero.

Table 5 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses in Canada
(Showing enrolment and graduation for 1956-57)

Courses designed to prepare youths and adults who have left the regular school system for entry into employment or to upgrade those already in jobs. The skills of the trade are emphasized as well as trade theory, mathematics and science as required to work effectively in the trade.

ENTRANCE REQUIREMENTS: Minimum entrance requirements: Grade 7 certificate in Quebec; Grade 8 successful completion in other provinces.

COURSE AND DURATION (By Field of Specialization)	NFLD.		N.S.		P.E.I.		N.B.		Que.a/		ONT.		MAN.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G	E	G	E	G	E	G
AUTOMOTIVE																		
Auto Body Repair (2 years) (7-12 mos)	20	20					14	13	35	25			22	..			37	17
Auto Body Repair (6 mos)			55	43			27	24					33	..			57	32
Auto Body Repair (7-12 mos)	19	16			21	19												
Auto Mechanics (6 mos)			15	-					716	258					42	10	125	78
Automotive (2 years)																		
Bulldozer operator (2-3 mos)																		
Diesel (2 years)									35	24			45	20			51	23
Diesel (7-12 mos)	21	18	45	12							9	..			18	17	71	45
Diesel (5 mos)																		
Heave equipment mech. (6-9 mos)																		
BUILDING CONSTRUCTION																		
Bricklaying (7-12 mos)	-	-			-	-			104									
Carpentry (2 years)									621	151								
Carpentry (7-12 mos)	19	15			18	7	14	13	115		6	..	10	..			94	30
Carpentry (6 mos)			12	-														
Carpentry (6-10 mos)									110									
Plastering (2 years)									9	5								
Plumbing (7-12 mos)	17	14	22	17	12	10	14	10	62								17	12
Plumbing (3-6 mos)																		

.. indicates figures not available

- indicates nil or zero

a/ Courses of less than two years' duration are offered in the apprenticeship centres.

Table 5 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses in Canada (Cont'd)

COURSE AND DURATION (By Field of Specialization)	Nfld.		N.S.		P.E.I.		N.B.		QUE. ^{a/}		ONT.		MAN.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G	E	G	E	G	E	G
<u>DRAFTING</u>																		
Architectural drafting (8-10 mos)	9	9			3	3							35	19				
Drafting (9 mos)													25	18				
Machine drawing (8-10 mos)																		
<u>ELECTRICAL AND ELECTRONIC</u>																		
Electricity (2 years)	19	18			8	7	13	12	1085	182			25	..			50	11
Electricity (7-12 mos)									62									
Electricity (6 mos)																		
Electrical appliances repair (7 mos)				15									20	3				
Radio (2 years)									38	13			39	29				
Radio (7-12 mos)													17	28				
Television servicing (4 mos)	-	-																
<u>MECHANICAL AND METAL WORKING</u>																		
Blacksmith (2 years)									88	14								
Foundry (2 years)									28	4								
Machine shop (2 years)									943	211								

.. indicates figures not available.

- indicates nil or zero.

a/ Courses of less than two years' duration are offered in the apprenticeship centres.

Table 5 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses in Canada (Concl'd)

COURSE AND DURATION (By Field of Specialization)	NFLD.		N.S.		P.E.I.		N.B.		QUE. ^a		ONT.		MAN.		ALTA.		B.C.	
	E	G	E	G	E	G	E	G	E	G	E	G	E	G	E	G	E	G
MECHANICAL AND METAL WORKING (Concl'd)																		
Machine Shop (7-12 mos)	5	5					12	11					21	1			62	9
Machine Shop (6 mos)				39		25			26	9								
Pattern Making (Wood) (2 years)									174	38								
Sheet metal (2 years)				20		24			62									
Sheet metal (6-10 mos)									243	55								
Welding (2 years)									33									
Welding (7-12 mos)	23	23		37	20	15	22	22					112	23	131	112	288	221
Welding (3-6 mos)																		
Welding (special) (3 weeks)																		
MISCELLANEOUS																		
Cabinet Making (2 years)									56	10								
Cabinet Making (millwork) (10 mos)							14	5			12	..						
Instrumentation (10 mos)									62									
Painting (6-10 mos)																		
Power Plant engineering (12 mos)									40	6			19	..				
Refrigeration (2 years)																		
Refrigeration (7-12 mos)													17	2	6	6		
Stationary engineering (9 mos)	26	19							23									
Tile Setting (6-10 mos)	12	10																
Woodworking (general) (9 mos)																		

Note: In the Northwest Territories courses were offered in 1956-57 in: Carpentry (8 weeks), enrolment 29, graduations 20; electricity, enrolment 6, graduations, 4; and heavy equipment operation, enrolment 56, graduations 52.

.. indicates figures not available.

a/ Courses of less than two years' duration are offered in the apprenticeship centres.

Table 6 - Full-Time Annual Classes For Apprentices in Canada
(Showing intake for 1956-57)

Day classes taken by indentured apprentices for a specific period of time, usually during each year of apprenticeship or as laid down in their apprenticeship agreement.

ENTRANCE REQUIREMENTS: The academic entrance requirements vary with each province, it is usually Grade 8 or more; duration also varies according to individual apprenticeship agreement; see provincial Table 12 for details.

COURSE (By Field of Specialization)	NFLD.	N.S.	N.B.	ONT.	MAN.	SASK.	ALTA.	B.C.
	I	I	I	I	I	I	I	I
<u>AUTOMOTIVE</u>								
Auto Body Repair	2				17	23	190	
Automotive								41
Auto Mechanics	75				123			
Motor Mechanics		92				166	738	
Motor Vehicle Repair				430				
<u>BUILDING CONSTRUCTION</u>								
Bricklaying	1	20		43	43	24	47	17
Carpentry	3	31		112	108	73	151	145
Lathing (Metal)				37	14			35
Painting & Decorating				19	44		47	32
Plastering				16	28		52	66
Plumbing	9	18		238	94	75	392	22
Steam Fitting				103	11		101	27
<u>DRAFTING</u>								
Structural Steel (Drafting & Detailing)				35				
<u>ELECTRICAL AND ELECTRONIC</u>								
Electricity	1					94	420	40
Electrical Construction		29		264	145			
Linemen			34		1			
Motor Winding								
Radio Technology							-	
<u>MECHANICAL AND METAL WORKING</u>								
Machine Shop							36	18
Millwright & Machinist	22							
Sheet Metal				92	43	57	164	39
Steel Fabrication & Welding								57
Welding						25	512	

- indicates nil or zero

Table 6 - Full-Time Annual Classes For Apprentices in Canada, (Concl'd)

COURSE (By Field of Specialization)	NFLD.	N.S.	N.B.	ONT.	MAN.	SASK.	ALTA.	B.C.
	I	I	I	I	I	I	I	I
<u>MISCELLANEOUS</u>								
Factory Woodworking						14		
Refrigeration						8	-	
Stationary Engineer	6							
Woodworking	7							

There are no full-time annual classes for indentured apprentices in Quebec. All full-time apprenticeship training in this province is done on a pre-apprenticeship basis. See Table 5.

In New Brunswick, apprenticeship training is largely on a part-time or pre-apprenticeship basis. Courses for apprentices are referred to as "refresher courses".

- indicates nil or zero.

Table 7 - Summary of Expenditures on Vocational Education in Canada, 1951-55

Distribution of Net Expenditures by Year, 1951-55

Year	Municipal a/		Provincial		Federal		Total
1951	\$14,296,060.	48%	\$12,028,951.	40%	\$3,564,074.	12%	\$29,889,085.
1952	\$15,123,302.	45%	\$14,248,519.	43%	\$4,150,636.	12%	\$33,522,458.
1953	\$16,947,197.	45%	\$17,437,776.	46%	\$3,431,037.	9%	\$37,816,010.
1954	\$17,637,991.	47%	\$16,614,331.	45%	\$3,037,248.	8%	\$37,289,570.
1955	\$19,561,388.	46%	\$19,892,916.	46%	\$3,397,540.	8%	\$42,851,844.
Total	\$83,565,938.	46%	\$80,222,493.	44%	\$17,580,535.	10%	\$181,368,967.

a/ Municipal figures include expenditures by the apprenticeship commissions of the Province of Quebec. No municipal expenditures in Quebec and Newfoundland or in the Yukon and Northwest Territories.

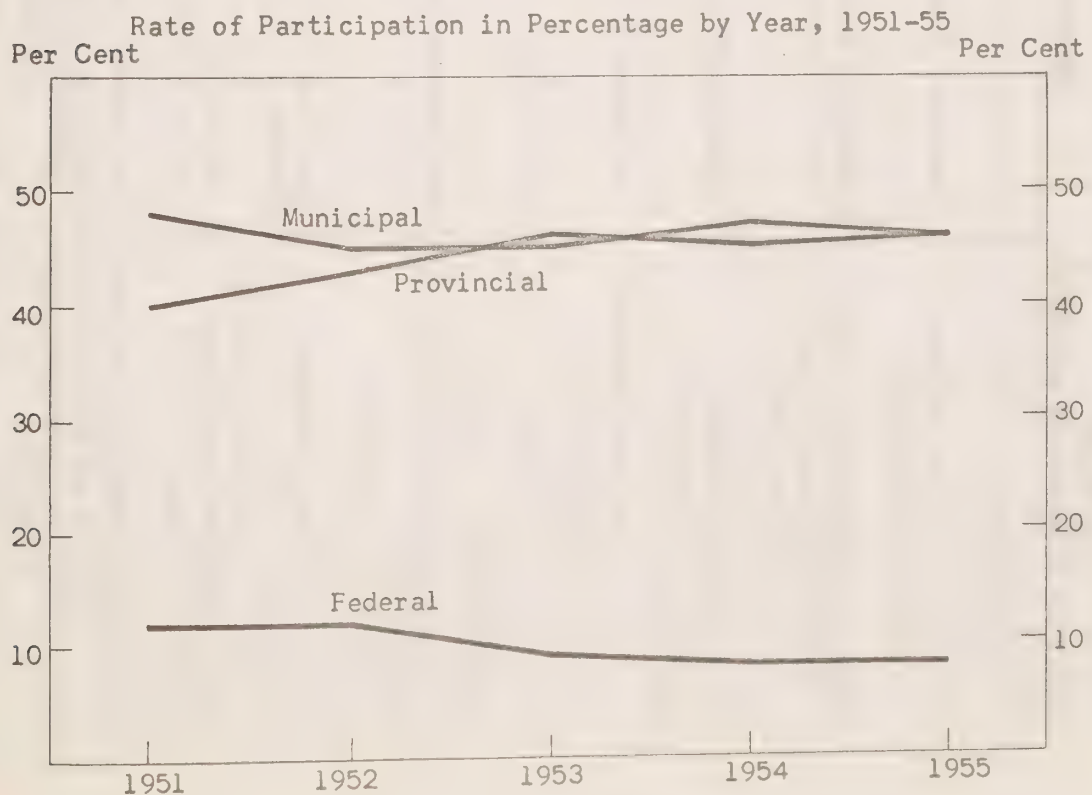


Table 3 - Technical and Trade Training Programs by Province, 1956-57

PROGRAMS (Showing responsible agencies)	INSTITUTIONS AND LOCATIONS	REMARKS
<u>NEWFOUNDLAND</u>		
Full-time trade program (Dept. of Education)	Vocational Institute, St. John's	See Table 11 for details
a/ Apprenticeship program (Full-time annual classes) (Dept. of Education)	Vocational Institute, St. John's	See Table 12 for details. Part-time classes were provided for 287 apprentices.
b/ Evening program (Dept. of Education)	Vocational Institute, St. John's	Training provided for 128 persons in trades covered by this report.
b/ Correspondence program (Dept. of Education)	Province-wide	Fifty-three persons took training in trades covered by this report.
<u>NOVA SCOTIA</u>		
Full-time post-high-school program (Dept. of Education)	Nova Scotia Land Survey School, Lawrencetown	See Table 9 for details
Full-time high school program (Dept. of Education through Regional and Vocational School Boards)	Vocational High Schools in Halifax and Yarmouth	See Table 10 for details

- a/ Apprenticeship program in this report refers only to class training in all provinces. The administration of the apprenticeship program is by Departments of Labour in all provinces except Quebec where it is under regional apprenticeship commissions.
- b/ Unless indicated, evening and correspondence programs are always at the trade level for all provinces.

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (Showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<u>NOVA SCOTIA (Cont'd)</u>		
Full-time trade program (Dept. of Labour)	Schools in Halifax, North Sydney, Stellarton and Springhill	See Table 11 for details
Apprenticeship program (Full-time annual classes) (Dept. of Labour)	Schools in Halifax and North Sydney	See Table 12 for details. 349 apprentices were provided with part-time training.
Evening program (Dept. of Education and municipal school boards)	Various centres in the province	Training was provided for 1,276 persons in trades covered by this report.
Correspondence Program (Dept. of Education)	Province-wide	479 persons participated in training in trades covered by this report.
<u>PRINCE EDWARD ISLAND</u>		
Full-time trade program (Dept. of Education)	Provincial Vocational School, Charlottetown	See Table 11 for details
Evening program (Dept. of Education)	Provincial Vocational School, Charlottetown	110 persons participated in trades covered by this report.
<u>NEW BRUNSWICK</u>		
Full-time post-high-school program (Dept. of Education)	New Brunswick Technical Institute, Moncton	See Table 9 for details

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<p><u>NEW BRUNSWICK</u> (Cont'd)</p> <p>Full-time high school program (Municipal school boards)</p>	<p>Composite or regional high schools in: Andover, Atholville, Barachois, Bathurst, Belle Isle, Blacks Harbour, Boiestown, Campbellton, Campobello Island, Canterbury, Centreville, Chipman, Dalhousie, Dear Island, Edmunston, Fredericton, Fredericton Junction, Grand Falls, Grand Manan, Harvey, Lawrence Station, Minto, Moncton, Newcastle, Petitcodiac, Petit Rocher, Plaster Rock, Port Elgin, Richibucto, Rothesay, Sackville, St. Francois, St. Georges, St. Stephens, Salisbury, Simonds, Southampton, Staley, Sunny Corner, Sussex, Woodstock</p>	<p>See Table 10 for details</p>
<p>Full-time trade program (Dept. of Education)</p> <p>Apprenticeship program (Full-time annual classes) (Dept. of Education and municipal school boards)</p>	<p>Vocational School in Saint John</p> <p>New Brunswick Technical Institute, Moncton</p> <p>Full-time classes in Fredericton Part-time classes various centres</p>	<p>See Table 11 for details</p>
<p>Evening program (Dept. of Education and municipal school boards)</p>	<p>Various centres</p>	<p>See Table 12 for details. Part-time classes were provided for 1,325 apprentices.</p> <p>Training was provided for approximately 700 in trades covered by this report.</p>

Table 3 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<p><u>NEW BRUNSWICK</u> (Cont'd)</p> <p>Correspondence program (Dept. of Education)</p>	<p>Province-wide</p>	<p>Courses were provided for 212 persons in trades covered by this report.</p>
<p><u>QUEBEC</u></p> <p>Full-time post-high-school program (Dept. of Social Welfare and Youth) a/</p>	<p>Institutes of Technology (formerly technical schools) in: Arvida, Chicoutimi, Hull, Montreal, Quebec, Rimouski, Shawinigan, Sherbrooke and Three Rivers; also the Institute of Graphic Arts (formerly Graphic Arts School) and the Institute of Applied Arts (formerly the Furniture School) in Montreal; the Paper-Making Institute in Three Rivers and the Textile Institute in St. Hyacinthe b/</p>	<p>See Table 9 for details</p>
<p>Full-time preparatory year to post-high-school program (Dept. of Social Welfare and Youth)</p>	<p>Given in Institutes of Technology and most of the trade schools.</p>	<p>One year preparatory course to post-high-school program. Entrance requirements are Grade 9 completion minimum. 1,843 students were enrolled in that course.</p>

a/ The Institute of Technology in Arvida is operated by the local school board but the programs are supervised by the Department of Social Welfare and Youth.

b/ The first two years of specialization of the technical course are also given in many of the trade schools.

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<p>QUEBEC (Cont'd)</p> <p>Full-time trade program (Dept. of Social Welfare and Youth)</p>	<p>Trade schools (formerly Arts and Crafts schools) in: Alma, Amos, Asbestos, Cabano, Cap-de-la-Madeleine, Drummondville, Granby, Grand'Mere, Grandes-Bergeronnes, Joliette, Knowlton, La Tuque, Lauzon, Louiseville, Matane, Mont-Joli, Montmagny, Mont-Laurier, Montreal (4 schools), Plessisville, Port Alfred, Riviere du Loup, Rouyn, Ste. Anne des Monts, St. Gabriel de Brandon, St. Jean, St. Jerome, Shawbridge, Sorel, Thetford Mines, Trois-Rivieres, Valleyfield, Victoriaville, and also the Automobile School in Montreal and Quebec a/</p>	<p>See Table 11 for details</p>
<p>Apprenticeship program (Full-time pre-employment classes) (Local committees formed by employers and employees, financially aided by the Dept. of Labour)</p>	<p>Apprenticeship centres in: Chicoutimi, Hull, Joliette, Montreal, Quebec, St. Jean, St. Jerome, Sherbrooke</p>	<p>See Table 11 for details. Part-time classes were provided for 3,888 apprentices</p>
<p>Evening program (Dept. of Social Welfare and Youth)</p>	<p>Various centres throughout the province</p>	<p>An estimated 12,600 persons participated in trades covered by this report.</p>
<p>Correspondence program (Dept. of Social Welfare and Youth)</p>	<p>Province-wide</p>	<p>An estimated 900 participated in trades covered by this report.</p>

a/ Trade courses are also given in some of the institutes of technology.

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<u>ONTARIO</u>		
Full-time post-high-school program (Dept. of Education)	a) Ryerson Institute of Technology, Toronto Hamilton Institute of Technology, Hamilton Provincial Institute of Mining, Haileybury	See Table 9 for details
Full-time high school program (municipal school boards)	Vocational or Composite or Technical High Schools in: Belleville, Brantford, Brockville, Chatham, Cornwall, Fort William, Galt, Guelph, Hamilton, Kingston, Kirkland Lake, Kitchener, London, New Toronto, Niagara Falls, North Bay, North York, Crillia, Oshawa, Ottawa, Owen Sound, Peterborough, Port Arthur, St. Catharines, St. Thomas, Sarnia, Sault Ste. Marie, Scarboro, Sudbury, Timmins, Toronto, Welland, Weston, Windsor, York Township	See Table 10 for details
Full-time trade program (Dept. of Education)	Provincial Institute of Trades, Toronto	See Table 11 for details
Apprenticeship program (Full-time annual classes) (Dept. of Education)	Provincial Institute of Trades, Toronto	See Table 12 for details
Evening program - post-high-school (Dept. of Education and municipal school boards)	Various centres in the province	4,328 subject enrolments were reported in trades covered by this report.

a) The Eastern Ontario Institute of Technology in Ottawa opened in fall 1957.
The Western Ontario Institute of Technology in Windsor is planned to open in fall 1958.

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<p><u>ONTARIO</u> (Cont'd)</p> <p>Evening program (Dept. of Education and municipal school boards)</p> <p>Correspondence programs (Dept. of Education)</p> <p><u>MANITOBA</u></p> <p>Full-time high school program (Municipal school boards)</p> <p>Full-time trade program (Dept. of Education)</p> <p>Apprenticeship program (Full-time annual classes) (Dept. of Education)</p> <p>Evening program (Dept. of Education and municipal school boards)</p> <p>Correspondence program (Dept. of Education)</p>	<p>Various centres in the province</p> <p>Province-wide</p> <p>Composite high schools in Brandon and Flin Flon Winnipeg Technical and Vocational High School, Winnipeg</p> <p>Manitoba Technical Institute, Winnipeg</p> <p>Manitoba Technical Institute, Winnipeg</p> <p>Various centres in the province</p> <p>Province-wide</p>	<p>Training provided for an estimated 22,000 persons in trades covered by this report.</p> <p>150 persons in trades covered by this report.</p> <p>See Table 10 for details</p> <p>See Table 11 for details</p> <p>See Table 12 for details. 28 apprentices were provided with part-time classes.</p> <p>Training was provided for 1,349 persons in trades covered by this report.</p> <p>Training was provided for 349 persons in trades covered by this report.</p>

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<u>SASKATCHEWAN</u>		
Full-time high school program (Municipal school boards)	Technical high schools in: Regina, Saskatoon and Moose Jaw. Also composite high schools in various centres	See Table 10 for details of the three technical high schools. Figures for composite high schools not available.
Apprenticeship program (Full-time annual classes) (Dept. of Education and municipal school boards)	Canadian Vocational Training School, Saskatoon Moose Jaw Technical High School, Moose Jaw	See Table 12 for details
Evening program (Dept. of Education and municipal school boards)	Various centres in the province	Training provided for 1,302 persons in trades covered by this report.
<u>ALBERTA</u>		
Full-time post-high-school program (Dept. of Education)	Provincial Institute of Technology and Art, Calgary	See Table 9 for details
Full-time high school program (Municipal school boards)	Composite high schools: Victoria, Eastglen, Strathcona and Ross Shepherd in Edmonton; Crescent Heights and Western Canada in Calgary; Lindsay Thurber in Red Deer; Alexandra in Medicine Hat; Taber in Taber; and one technical high school in Lethbridge.	See Table 10 for details
Full-time trade program (Dept. of Education)	Provincial Institute of Technology and Art, Calgary	See Table 11 for details

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Cont'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<u>ALBERTA (Cont'd)</u>		
Apprenticeship program (Full-time annual classes) (Dept. of Education)	Provincial Institute of Technology and Art, and C.V.T. School in Calgary	See Table 12 for details
Evening program (Dept. of Education and municipal school boards)	Various centres in the province	Training provided for 518 persons in trades covered by this report.
Correspondence program (Dept. of Education)	Province-wide	Training provided for 1,004 persons in trades covered by this report.
<u>BRITISH COLUMBIA</u>		
Full-time post-high- school program (Municipal school boards)	Vancouver Vocational Institute, Vancouver	See Table 9 for details
Full-time high school program (Municipal school boards)	High schools in: Kelowna, Nanaimo, North Vancouver, Victoria (F.T. Fairrey unit) Senior high schools in: Como Lake, Trail, New Westminster. Technical high schools in: Vancouver	See Table 10 for details
Full-time trade program (Dept. of Education and municipal school boards)	Vancouver Vocational Institute, Vancouver Federal-Provincial School, Nanaimo	See Table 11 for details

Table 8 - Technical and Trade Training Programs by Province, 1956-57 - (Concl'd)

PROGRAMS (showing responsible agencies)	INSTITUTIONS AND LOCATION	REMARKS
<u>BRITISH COLUMBIA</u> (Cont'd)		
Apprenticeship program (Full-time annual classes) (Dept. of Education and municipal school boards)	Vancouver Vocational Institute and Pacific National Exhibition Grounds, Vancouver Part-time classes in various centres	See Table 12 for details. 1,268 apprentices participated in part-time classes.
Evening program (municipal school boards)	Various centres in the province	Training provided for 4,704 persons in trades covered by this report.
Correspondence program (Dept. of Education)	Province-wide	Training provided for 1,472 persons in trades covered by this report.
<u>NORTHWEST TERRITORIES</u>		
Full-time trade program (Federal Dept. of Northern Affairs)	Aklavik and Fort Smith in the Northwest Territories; Leduc, Alberta	See Table 11 for details. This program is variable in location and type of course.
Evening program (Federal Dept. of Northern Affairs)	Great Whale River, Quebec	Twelve persons participated in this temporary course.

Table 9 - Full-Time Post-High School Courses, By Province, 1952-57 - (Cont'd)

ENROLMENT AND GRADUATION											
1952-53		1953-54		1954-55		1955-56		1956-57		Number of Graduates For the Last Five Years	
E	G	E	G	E	G	E	G	E	G		
4	1	5	-	6	-	12	1	13	2	4	
6	2	6	3	7	6	7	7	13	7	25	
506	95	545	99	605	105	732	137	747	151	597	
99	19	171	18	229	26	385	71	481	78	212	
11	3	8	1	19	1	7	1	9	2	8	
33	12	26	8	25	3	19	7	43	9	39	
92	36	121	36	152	24	180	39	183	40	175	
23	9	16	5	15	5	15	3	30	6	28	
503	75	559	91	639	117	623	118	651	149	550	
54	8	48	12	47	12	42	7	38	4	43	
6	-	13	1	13	4	10	1	16	3	9	
91	15	56	25	67	20	76	19	114	26	105	
5	-	3	1	1	4	re electronics				1	
30	7	20	8	19	4	34	6	30	2	27	
19	3	27	5	46	1	51	10	76	16	35	
107	28	102	33	63	27	48	23	34	8	119	
16	1	19	1	27	3	34	6	27	8	19	
140	43	135	32	133	28	138	29	170	34	166	
1,836	374	1,987	390	2,214	404	2,570	502	2,854	565	2,235	
TOTAL											

QUEBEC (Concl'd)	
Institutes of Technology (each course is offered in one or more of the Institutes listed in Table 8)	
\$40 to \$50 per year for residents of Quebec,	
\$100 for residents of other provinces,	
\$200 for non-Canadians	
*Blacksmith	(3 years)
Diesel	(3 years)
Electricity	(3 years)
Electronics	(3 years)
Foundry	(3 years)
Furniture & Cabinet Making	(3 years)
Graphic Arts	(3 years)
Industrial Chemistry	(3 years)
Machine Shop	(3 years)
Pattern Making	(3 years)
Plumbing & Heating	(3 years)
Pulp & Paper Making	(3 years)
Radio	(3 years)
Refrigeration	(3 years)
Sheet Metal	(3 years)
Textile Technology	(3 years)
Welding - Electric & Acetylene	(3 years)
Woodworking - General Construction (3 years)	

* These courses are listed by shop option, but all students follow the same curriculum of technical subjects.
 - Indicates nil or zero.

Table 9 - Full-Time Post-High School Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the Last Five Years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
ONTARIO											
Institutes of Technology (each course is offered in one or more of the Institutes listed in Table 8)											
\$187 per year,											
Fees for mining technology are \$75 per year for residents,											
\$110 per year for non-residents and \$230 per year for non-resident non-British											
Fees for textile technology are \$115 per year for residents, \$150 per year for non-residents and \$270 per year for non-resident non-British											
Architectural Technology (3 years)	113	43	99	24	129	24	142	23	169	34	148
Chemical Technology (3 years)	96	31	105	23	131	31	112	30	105	15	130
Electrical and Electronic Technology (3 years)	360	69	454	68	536	88	534	137	613	115	477
Furniture and Interior Design Technology (3 years)	44	12	53	5	49	13	47	20	42	7	57
Mechanical and Metallurgical Technology (3 years)	97	27	137	14	162	21	191	38	244	35	135
Mining Technology (3 years)	38	9	83	19	98	33	98	56	96	56	173
Printing Management Technology (3 years)	116	26	95	14	88	24	72	19	63	13	96
Textile Technology (3 years)	39	15	28	11	21	8	23	7	19	3	44
TOTAL	903	232	1,054	178	1,214	242	1,219	330	1,351	278	1,260

★ The Ryerson Institute of Technology is also offering courses in aeronautical, gas and instrument technology but no figures are available for the present.

Table 9 - Full-Time Post-High School Courses, By Province, 1952-57 - (Concl'd)

	ENROLMENT AND GRADUATION										Number of Grad- uates for the Last Five Years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
ALBERTA											
Provincial Institute of Technology and Art, Calgary											
\$51 per year,											
Fees for Aeronautical Engineering and Aircraft											
Maintenance Technology are \$66 per year											
Aeronautical Engineering (3 years)	6	7	9	6	12	11	16	13	18	15	52
Aircraft Maintenance Technology (2 years)	35	4	49	17	51	13	60	14	57	13	61
Architectural Drafting Technology (2 years)	-	-	-	-	-	-	22	-	29	1	1
Construction Technology (2 years)	34	8	27	5	23	2	6	4	14	3	22
Drafting Technology (2 years)	14	2	22	3	21	-	19	3	25	2	10
Industrial Electrical Technology (2 years)	43	8	38	10	41	4	39	10	47	17	49
Industrial Laboratory Technology (2 years)	14	4	20	17	20	14	42	-	53	14	49
Land Surveying Technology (2 years)	48	5	19	13	41	12	50	9	53	6	45
Mechanical Technology (2 years)	13	3	16	1	10	3	13	3	5	5	15
Radio and Electronic Technology (2 years)	18	3	28	6	58	12	67	14	74	17	52
TOTAL	225	44	228	78	277	71	334	70	375	93	356
BRITISH COLUMBIA											
Vancouver Vocational Institute, Vancouver											
\$15 per month											
Drafting - General (9 months)	36	17	30	18	43	8	68	25	82	37	105
Electronics (11 months)									52	18	18
TOTAL	36	17	30	18	43	8	68	25	134	55	123

* These figures are for the third or last year of the aeronautical engineering course; in the first two years the students must take the aircraft maintenance technology course.

- Indicates nil or zero.

Table 10 - Full-Time High School Courses, By Province, 1952-57

Courses with a Definitive Occupational Objective
Including the Study of High School Mathematics, Science,
Language and Social Studies, and Training in Specific
Trade Skills and Theory.

	ENROLMENT AND GRADUATION										Number of Graduates for the last five years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
NOVA SCOTIA											
Vocational High Schools (each course is offered in one or more of the Vocational High Schools listed in Table 8)											
No fees											
Automotive Mechanics (3 years)	26	-	39	8	31	7	28	5	34	8	28
Brick and Tile (2 years)	13	5	22	8	22	5	20	9	18	5	32
Carpentry (3 years)	52	-	71	13	65	14	80	20	67	16	63
Construction Wiring (3 years)			re electricity								4
Electricity (3 years)	53	-	64	20	53	10	62	12	23	4	42
Drafting (Mechanical) (3 years)	16	2	22	2	22	8	25	7	30	3	22
General Mechanics (3 years)	34	-	29	11	27	4	33	1	35	8	24
Heating & Ventilating (3 years)	17	-	28	5	38	7	37	11	34	10	33
Machine Shop (3 years)	17	-	23	4	31	1	33	9	27	5	19
Painting & Decorating (2 years)	7	-	10	1	14	2	14	3	15	3	9
Plumbing (3 years)	14	-	26	-	28	-	31	-	29	5	5
Radio Servicing (3 years)			re electricity						39	7	7
Sheet Metal (3 years)	13	-	20	1	21	3	18	1	21	3	8
Television Servicing (3 years)			re electricity						5	4	4
Welding (2 years)	14	7	15	3	19	13	13	4	21	5	32
TOTAL	276	14	369	76	361	74	384	82	378	86	332

Table 10 - Full-Time High School Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the last five years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
NEW BRUNSWICK											
Composite or Regional High Schools or Vocational Schools (each of these courses is offered in one or more of the composite or regional high schools or vocational schools listed in Table 8)											
No fees											
Cabinet Making (3 years)											
Carpentry (3 years)											
Drafting (3 years)											
Electricity (3 years)											
Machine Shop Practice (3 years)											
Motor Mechanics (3 years)											
Printing (3 years)											
Radio-Television (3 years)											
Sheet Metal (3 years)											
Welding (3 years)											
TOTAL	565	115	710	158	770	161	822	194	867	201	829
ONTARIO											
Vocational, Composite or Technical High Schools (each of these courses is offered in one or more of the vocational, composite or technical high schools listed in Table 8)											
No fees											
Aircraft Mechanics (4 years)											
Applied Electricity (4 years)											
Grades IX, X, XI, XII											
	13	216	..	7	..	19	..	15	..	17	71
	..	..	..	231	..	242	..	274	..	280	1,243

★ Breakdown of figures by trade not available.

.. Indicates figures not available.

Table 10 - Full-Time High School Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the last five years.
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
ONTARIO (Concl'd)											
Vocational, Composite or Technical High Schools (Concl'd)											
Grades IX, X, XI, XII											
Applied Electronics (4 years)	..	18	..	23	..	39	..	50	..	55	185
Auto Mechanics (4 years)	..	173	..	187	..	178	..	220	..	242	1,000
Drafting-Architectural (4 years)	..	47	..	66	..	53	..	71	..	74	311
Drafting-Mechanical (4 years)	..	168	..	194	..	218	..	207	..	210	997
Electrical & Steam Operating (4 years)	..	4	..	2	..	-	..	-	..	3	9
Industrial Chemistry (4 years)	..	33	..	55	..	45	..	50	..	58	241
Machine Shop Practice (4 years)	..	204	..	259	..	286	..	292	..	295	1,336
Mining (4 years)	..	3	..	7	..	-	..	-	..	-	10
Printing (4 years)	..	58	..	58	..	48	..	51	..	53	268
Plumbing (4 years)	..	1	..	3	..	4	..	5	..	7	20
Sheet Metal Practice (4 years)	..	13	..	21	..	23	..	36	..	45	138
Welding (4 years)	..	8	..	8	..	10	..	14	..	16	56
Woodwork-Cabinet (4 years)	..	8	..	12	..	2	..	7	..	7	36
Woodwork-Carpentry (4 years)	..	45	..	59	..	48	..	49	..	51	252
Woodwork-General (4 years)	..	69	..	48	..	68	..	74	..	80	339
Woodwork-Patternmaking (4 years)	..	6	..	14	..	8	..	7	..	7	42
TOTAL	..	1,087	..	1,254	..	1,291	..	1,422	..	1,500	6,554

.. Indicates figures not available.

- Indicates nil or zero.

Table 10 - Full-Time High School Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the last five years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
MANITOBA											
Composite or Technical Vocational High Schools (each of these courses is offered in one or more of the composite or technical vocational high schools listed in Table 8)											
No fees for residents											
\$300 per year for non-residents											
Automotive (3 years)	131	23	172	10	149	20	106	18	97	5	76
Carpentry & Joinery (3 years)	124	5	99	7	38	7	32	6	22	7	32
Electricity (3 years)	81	5	85	8	83	17	72	20	93	22	62
Machine Shop (3 years)	41	6	82	8	39	22	31	9	50	7	52
Sheet Metal (3 years)	54	-	60	-	44	-	30	-	-	-	-
Welding (3 years)	13	-	21	-	-	-	-	-	-	-	-
TOTAL	444	39	519	33	353	66	271	53	262	41	222
SASKATCHEWAN											
Technical High Schools (each of these courses is offered in one or more of the technical high schools listed in Table 8)											
No fees for residents,											
\$5.00 per year for non-residents											
Auto Body Repair (4 years)											
Drafting (4 years)											
Electricity (4 years)											
Machine Shop (4 years)											
Motor Mechanics (4 years)											
Radio Operating & Servicing (4 years)											
Welding (4 years)											
Woodworking (4 years)											
TOTAL	1,148	..	1,191	..	1,174	..	1,207	..	1,220	..	..
	1,148	..	1,191	..	1,174	..	1,207	..	1,220	..	..

- Indicates nil or zero.

.. Indicates figures not available.

* These figures show total industrial enrolment in the three technical high schools. Figures for composite schools are not available. Breakdown of enrolments by trades not available.

Table 10 - Full-Time High School Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the Last Five Years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
ALBERTA											
Composite High Schools (each of these courses is offered in one or more of the composite high schools listed in Table 8)											
No fees											
Automotive	a/ 916	b/ 79	868	12	1,024	54	1,162	69	1,182	69	283
Electricity	552	20	659	54	629	21	707	34	788	27	156
Metal Working	570	13	418	32	591	41	659	38	659	42	166
Painting	188	36	99	27	104	46	114	34	154	43	186
Woodworking	1,030	42	1,308	31	1,511	56	1,434	37	1,595	48	214
TOTAL	3,256	190	3,352	156	3,859	218	4,076	212	4,378	229	1,005
BRITISH COLUMBIA											
High Schools (each of these courses is offered in one or more of the high schools listed in Table 8)											
No fees											
Automotive	253	..	232	..	281	44	305	50	332	22	..
Carpentry	194	..	236	..	313	68	301	59	354	46	..
Drafting									48	15	..
Electricity	171	..	166	..	239	34	215	44	309	38	..
Foundry							6		22	9	..
Machine Shop	205	..	199	..	395	60	283	40	347	45	..
Metalwork	17	..	21	..	28	3	5	..	4	..	..

.. Indicates figures not available.

a/ Enrolments shown in the table are shop enrolments.

b/ The number of graduates is an estimate made of the number of students in the last year of each course.

c/ No. of graduates not available, this column gives the number of students in the last year of the 3-year course.

Table 10 - Full-Time High School Courses, By Province, 1952-57 - (Concl'd)

ENROLMENT AND GRADUATION												Number of Grad- uates for the last five years
1952-53		1953-54		1954-55		1955-56		1956-57				
E	G	E	G	E	G	E	G	E	G			
<u>BRITISH COLUMBIA (Concl'd)</u>												
High Schools (each of these courses is offered in one or more of the high schools listed in Table 8)												
No fees												
Printing												
Sheet Metal Work												
TOTAL												
62	..	53	..	58	15	67	9	50	14	..	..
176	..	135	..	165	10	148	13	224	15	..	..
1,078	..	1,042	..	1,479	234	1,330	215	1,690	204	..	..

.. Indicates figures not available.

c/ No. of graduates not available, this column gives the number of students in the last year of the 3-year course.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57

Courses designed to prepare youths and adults who have left the regular school system for entry into employment or to upgrade those already in jobs. The skills of the trade are emphasized as well as trade theory, mathematics, and science as required to work effectively in the trade.

	ENROLMENT AND GRADUATION										Number of Graduates for the Last Five Years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
NEWFOUNDLAND											
Vocational Institute, St. John's											
\$5.00 per term of three months											
Auto Body Repair											
Auto Mechanics											
Bricklaying											
Carpentry											
Diesel Mechanics											
Drafting											
Electricity											
Metal Machinists											
Plumbing											
Radio Mechanics											
Stationary Engineering											
Welding											
Woodworking (General)											
TOTAL											
NOVA SCOTIA											
Department of Labour Trade Schools, Halifax, North Sydney, Stellarton, Springhill											
No fees											
Auto Body Repair											
Carpentry											
Diesel											

* Including full-time pre-employment courses for apprentices.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the last five years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
NOVA SCOTIA (Concl'd)											
Department of Labour Trade Schools, Halifax, North Sydney, Stellarton, Springhill											
No fees											
Electrical Construction (6 months)											
Machine Tool (6 months)	★ 53	50	21	34	32	33	37	35	15	25	177
Motor Vehicle Repair (6 months)											
Pipe Fitting (6 months)	8	-	-	8	-	-	23	12	15	-	29
Sheet Metal (6 months)	28	28	23	29	23	30	56	13	20	24	45
Welding (6 months)								33	37	30	150
TOTAL	131	111	90	112	97	108	223	149	260	151	631
PRINCE EDWARD ISLAND											
Provincial Vocational School, Charlottetown											
No fees											
Automotive Mechanics (9 months)	19	17	20	16	18	9	22	14	21	19	75
Bricklaying (9 months)	5	3	8	6	6	4	-	-	-	-	13
Carpentry (9 months)	17	10	18	15	16	10	17	9	18	7	51
Drafting (9 months)			1	1	1	1	3	2	3	3	7
Electricity (9 months)	5	5	5	5	8	3	10	8	8	7	28
Plumbing & Sheet Metal (9 months)	11	9	8	6	6	4	12	6	12	10	35
Welding (4 months)	11	10	17	16	16	10	18	12	20	15	63
TOTAL	68	54	77	65	71	41	82	51	82	61	272

★ Including full-time pre-employment courses for apprentices.

- Indicates nil or zero.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Graduates for the Last Five Years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
NEW BRUNSWICK											
New Brunswick Technical Institute, Moncton											
\$5.00 per course plus \$1.00 per month registration fee											
Body & Fender Repair & Painting (7 months)	20	12	19	16	13	11	14	14	14	13	66
Cabinet Making (Millwork) (10 months)	13	11	10	9	11	5	12	9	14	5	39
Carpentry (7 months)	16	12	26	17	18	13	15	12	14	13	67
Electricity (8 months)	47	34	38	31	49	48	10	8	13	12	133
Machine Shop (10 months)	25	25	21	20	8	7	10	10	12	11	73
Motor Mechanics (7 months)	70	60	54	45	27	24	51	49	27	24	202
Plumbing (5 months)					12	12	12	12	14	10	34
Welding (6 months)	12	12	22	17	15	14	28	27	22	22	92
TOTAL	203	166	190	155	154	134	152	141	130	110	706
QUEBEC											
Trade Schools and Institutes of Technology (each of these courses is offered in one or more of the trade schools and institutes of technology listed in Table 8)											
\$40 per year for residents of the province,											
\$100 per year for residents of other provinces,											
\$200 per year for non-Canadians											
Automotive (General) (2 years)	542	194	680	280	762	265	696	296	716	258	1,293
Auto Body Repair (2 years)	63	31	37	19	23	16	26	19	35	25	110
Blacksmith (2 years)	21	5	22	8	41	6	37	9	88	14	42
Cabinet Making (2 years)	10	3	38	4	21	1	23	3	56	10	21
Diesel (2 years)	51	18	48	24	47	26	44	25	35	24	117
Electricity (2 years)	774	150	871	206	980	254	999	289	1,085	282	1,181

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Cont'd)

QUEBEC (Cont'd)	ENROLMENT AND GRADUATION										Number of Graduates for the Last Five years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	F	
Trade Schools and Institutes of Technology (Concl'd)											
Foundry (2 years)	32	6	41	16	39	11	25	6	28	4	43
Machine Shop (2 years)	1,134	255	1,137	317	1,081	310	1,016	283	943	211	1,376
Pattern Making (2 years)	40	9	73	6	22	10	34	8	26	9	42
Plumbing (2 years)	9	1	19	7	12	4	11	6	9	5	23
Radio (2 years)	34	7	42	9	48	19	42	12	38	13	60
Refrigeration (2 years)	32	4	30	11	42	12	51	13	40	6	46
Tinsmithing (2 years)	144	20	158	22	137	31	177	46	174	38	157
Welding (Electric & Acetylene) (2 years)	242	62	273	74	338	46	348	62	243	55	299
Woodworking (Construction) (2 years)	701	155	718	133	724	127	733	157	621	151	723
TOTAL	3,799	920	4,187	1,136	4,317	1,138	4,263	1,234	4,137	1,105	5,533
Apprenticeship Centres (each of these courses is offered in one or more of the apprenticeship centres listed in Table 8)											
No fees											
Bricklaying (6 to 10 months)	90	*	107	*	98	*	97	*	104	*	
Carpentry (Construction) (6 to 10 months)	130		151		164		158		115		
Electricity (6 to 10 months)	66		80		68		56		62		
Painting (6 to 10 months)	69		86		64		82		62		
Plastering (6 to 10 months)	72		106		98		109		110		
Plumbing & Heating (6 to 10 months)	72		75		103		77		62		

* Pre-apprenticeship courses only; there are no graduates as such.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION												Number of Grad- uates for the Last five years
	1952-53		1953-54		1954-55		1955-56		1956-57				
	E	G	E	G	E	G	E	G	E	G			
QUEBEC (Concl'd)													
Apprenticeship Centres (Concl'd)													
Tilesetting Tinmithing Welding	6 70 -		5 57 11		11 59 39		22 63 28		23 62 33				
TOTAL	575		678		704		692		633				
ONTARIO													
Provincial Institute of Trades, Toronto													
\$150 fee													
Building Construction Diesel Engines Instrumentation	- - -	- - -	- 9 -	- .. -	1 9 10	.. .. ..	3 11 16	.. .. ..	6 9 12	.. .. ..		
TOTAL	-	-	9	..	20	..	30	..	27	..			

* Pre-apprenticeship courses only; there are no graduates as such.

- Indicates nil or zero.

.. Indicates figures not available.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Cont'd)

MANITOBA	ENROLMENT AND GRADUATION										Number of Grad- uates for the Year
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
Architectural Drafting (8 to 10 months)	22	4	30	3	51	12	67	27	35	19	63
Auto Body (6 to 8 months)	5	-	18	6	18	1	15	5	22	-	12
Auto Repair (6 to 8 months)	12	2	34	4	29	3	32	2	33	-	11
Bricklaying (6 to 7 months)	-	-	6	-	-	-	-	-	-	-	-
Diesel Mechanics (10 months)	34	1	46	-	39	11	63	10	45	20	42
Electrical Appliances Repair (7 months)	2	-	19	-	17	11	26	10	20	3	24
Factory Woodworking (6 to 7 months)	-	-	2	-	8	-	4	-	-	-	-
General Woodworking (6 to 8 months)	13	1	25	2	20	2	22	1	10	-	6
General Electrical Course (6 to 10 months)	9	-	27	1	31	-	27	-	25	18	1
Machine Drawing (8 to 10 months)	-	5	-	6	16	-	25	3	25	18	18
Machine Shop Practice (10 months)	23	-	15	-	16	-	-	-	21	1	27
Painting and Decorating (6 to 7 months)	-	-	1	-	2	-	-	-	1	-	-
Power Plant Engineering (12 months)	-	-	-	-	-	-	-	-	19	-	-
Plastering (6 to 7 months)	-	-	8	-	7	-	-	-	1	-	-
Plumbing (6 to 7 months)	-	-	17	11	16	10	3	13	39	29	67
Radio Servicing (10 months)	14	4	14	1	15	1	14	1	17	2	5
Refrigeration & Air Conditioning (10 months)	6	-	5	-	6	-	9	-	-	-	-
Sheet Metal (6 to 7 months)	-	-	-	-	13	2	29	19	17	-	49
Television Servicing (12 months)	-	-	57	25	56	16	60	28	112	23	101
Welding (Electric & Acetylene) (3 to 6 months)	46	9	-	-	-	-	-	-	-	-	-
TOTAL	186	22	325	67	348	76	402	124	442	143	432

* Students must work successfully in their trade for six months before receiving their graduation certificate.

- Indicates nil or zero.

.. Indicates figures not available.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Cont'd)

	ENROLMENT AND GRADUATION										Number of Grad- uates for the Last 5 Years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
ALBERTA											
Provincial Institute of Technology and Art, Calgary											
\$51 per course for Diesel Mechanics	38	9	33	9	40	7	46	11	42	10	46
\$51 per year for Automotive and Refrigeration	4	4	14	14	12	10	15	15	18	17	56
\$58 per course for Welding	201	157	177	146	16	6	10	3	6	6	25
Automotive					149	127	135	107	131	112	649
Diesel Mechanics											
Refrigeration											
Welding (Special)											
BRITISH COLUMBIA											
Vancouver Vocational Institute, Vancouver											
\$15 per month except Welding which is \$40 per month	243	170	232	175	217	150	206	136	197	145	776
Auto Body Repair											
Auto Mechanics	31	16	42	14	29	18	27	11	37	17	76
Carpentry	49	33	48	19	64	31	61	31	57	32	146
Diesel Mechanics	63	21	80	21	79	13	126	25	94	30	110
Electricity	53	23	55	23	54	27	49	25	51	23	121
Machine Shop	22	20	21	9	22	10	26	21	50	11	71
Plumbing and Heating	30	15	47	7	59	10	51	9	62	9	50
Welding	14	9	18	15	15	11	14	13	17	12	60
	142	40	148	47	115	52	139	49	106	55	243

* Enrolment figure used for 2-year automotive course.

Table 11 - Full-Time Pre-Employment and Pre-Apprenticeship Trade Courses, By Province, 1952-57 - (Concl'd)

	ENROLMENT AND GRADUATION										Number of Grad- uates for the last five years
	1952-53		1953-54		1954-55		1955-56		1956-57		
	E	G	E	G	E	G	E	G	E	G	
<u>BRITISH COLUMBIA (Concl'd)</u>											
Federal-Provincial School, Nanairo											
\$40 per month											
Bulldozer Operators	(8 to 10 weeks)										78
Heavy Equipment Mechanics	(6 to 9 months)	47	36	47	53	47	47	54	50	71	231
Welding (General)	(5 to 6 months)							24	..	182	166
TOTAL		451	213	506	208	484	219	571	234	852	1,352
<u>NORTHWEST TERRITORIES</u>											
No fees											
Aklavik, N.W.T.											
Carpentry	(8 weeks)							15	12	29	32
Fort Smith, N.W.T.											
Electricity	(5 weeks)									6	4
Aklavik, N.W.T.											
Leduc, Alberta											
Heavy Equipment Operation	(8 weeks)									56	52
TOTAL								15	12	91	88

.. Indicates figures not available.

Table 12 - Full-Time Annual Classes for Apprentices, by Province, 1952-57

Full-time day classes taken by indentured apprentices for a specified period of time usually during each year of apprenticeship or as laid down in their apprenticeship agreement

		I N T A K E (Excluding pre-employment or pre-apprentice- ship courses, which are included in Table 11)					
		1952-53	1953-54	1954-55	1955-56	1956-57	
<u>NEWFOUNDLAND</u>							
Vocational Institute, St. John's							
No fees							
Auto Body Repair	(From 3 to 12 weeks			61	66	2	
Auto Mechanics	for each year of			1	2	75	
Bricklaying	Apprenticeship)			1	2	1	
Carpentry	"			1	4	3	
Electricity	"			2	14	1	
Millwright & Machinists	"		22	28	5	22	
Plumbing & Pipefitting	"			2	31	9	
Stationary Engineering	"				1	6	
Woodworking	"					7	
TOTAL			22	95	125	126	
<u>NOVA SCOTIA</u>							
Department of Labour Trade Schools, Halifax,							
North Sydney							
No fees							
Bricklaying	(From 6 to 10 weeks		12	8	11	20	
Carpentry	during each year	7	11	11	21	31	
Electrical Construction	of Apprenticeship)				8	29	
Motor Mechanics	"	45	80	78	89	92	
Plumbing	"				18	18	
TOTAL		52	103	97	147	190	

Table 12 - Full-Time Annual Classes for Apprentices, by Province, 1952-57 (Cont'd)

	I N T A K E				
	(Excluding pre-employment or pre-apprenticeship courses, which are included in Table 11)				
	1952-53	1953-54	1954-55	1955-56	1956-57
<u>NEW BRUNSWICK</u>					
Fredericton				28	34
No fees				28	34
Linemen					
(3 to 4 weeks)					
TOTAL					
<u>ONTARIO</u>					
Provincial Institute of Trades, Toronto					
No fees					
Bricklaying	75	84	77	74	43
Carpentry	158	172	178	176	112
Electrical Construction	375	457	581	432	264
(10 weeks for each of the first two years of apprenticeship)	32	29	39	36	37
Metal Lathing	353	351	473	478	430
Motor Vehicle Repair	34	32	40	23	19
Painting	30	23	31	26	16
Plastering	217	360	404	358	238
Plumbing	82	95	136	161	92
Sheet Metal Work	81	96	129	126	103
Steam Fitting	21	26	33	30	35
Structural Steel					
(Drafting & Detailing)					
TOTAL	1,458	1,725	2,121	2,020	1,389

Table 12 - Full-Time Annual Classes for Apprentices, by Province, 1952-57 (Cont'd)

MANITOBA	I N T A K E					
	(Excluding pre-employment or pre-apprenticeship courses, which are included in Table 11)					
	1952-53	1953-54	1954-55	1955-56	1956-57	
Manitoba Technical Institute, Winnipeg						
No fees						
Auto Body Repair	22	20	18	25	17	(3 periods during apprenticeship)
Auto Repair Mechanic	127	133	102	151	123	Junior Course 8 weeks
Bricklaying	32	38	26	38	43	Intermediate Course
Carpentry	53	62	71	91	108	6 weeks
Electrical Construction	113	92	92	96	145	Senior Course 4 weeks)
Factory Woodworking	11	12	11	11	14	"
Lathing	-	-	-	13	14	"
Motor Winding	6	1	-	1	1	"
Painting & Decorating	32	34	34	42	44	"
Plastering	23	27	23	26	28	"
Plumbing	49	45	43	76	94	"
Refrigeration	9	11	18	8	8	"
Sheet Metal	46	47	26	49	43	"
Steam Fitting	5	-	4	28	11	"
TOTAL	528	522	468	655	693	

- Indicates nil or zero.

Table 12 - Full-Time Annual Classes for Apprentices, by Province, 1952-57 (Cont'd)

	I N T A K E					
	(Excluding pre-employment or pre-apprenticeship courses, which are included in Table 11)					
	1952-53	1953-54	1954-55	1955-56	1956-57	
<u>SASKATCHEWAN</u>						
Canadian Vocational Training School, Saskatoon;						
Moose Jaw Technical High School						
No fees						
Auto Body Repair	16	13	20	26	23	
Bricklaying	12	13	21	13	24	
Carpentry	70	50	64	85	73	
Electricity	52	71	107	59	94	
Motor Mechanics	109	108	127	100	166	
Plumbing	20	44	64	53	75	
Sheet Metal Work	37	46	46	55	57	
Welding	19	13	11	17	25	
TOTAL	335	358	460	408	537	
<u>ALBERTA</u>						
Provincial Institute of Technology and Art and						
Canadian Vocational Training School, Calgary						
No fees						
Auto Body Repair	181	203	198	165	190	
Bricklaying	21	37	23	33	47	
Carpentry	71	120	119	109	151	
Electricity	319	376	334	356	420	
Machine Shop	-	-	-	-	36	
Motor Mechanics	418	747	628	654	738	
Painting & Decorating	33	38	32	44	47	

- Indicates nil or zero.

Table 12 - Full-Time Annual Classes for Apprentices, by Province, 1952-57 (Cont'd)

	I N T A K E					
	(Excluding pre-employment or pre-apprenticeship courses, which are included in Table 11)					
	1952-53	1953-54	1954-55	1955-56	1956-57	
ALBERTA (Concl'd)						
Provincial Institute of Technology and Art and Canadian Vocational Training School (Concl'd)						
Plastering (4 to 11 weeks per year during each year of apprenticeship or as laid down in the apprenticeship agreement)	36	34	48	27	52	
Plumbing	308	377	327	363	392	
Radio Technology	14	9	2	-	-	
Refrigeration	1	3	1	-	-	
Sheet Metal Work	58	91	94	135	164	
Steam Fitting	58	68	65	66	101	
Welding	-	47	163	335	512	
TOTAL	1,518	2,150	2,034	2,287	2,850	
BRITISH COLUMBIA						
Vancouver Vocational Institute and Pacific National Exhibition Grounds, Vancouver						
No fees						
Automotive (4 weeks during each year of apprenticeship)	20	59	80	61	41	
Brick and Tile Laying				11	17	
Carpentry	3	14	35	38	145	
Electricity	3	3	23	25	40	
Lathing (Metal)			14	21	35	
Machine Shop	3	22	25	22	18	
Painting and Decorating			11	32	32	
Plastering			30	26	66	
Plumbing			16	26	22	

Table 12 - Full-Time Annual Classes for Apprentices, by Province, 1952-57 (Concl'd)

BRITISH COLUMBIA (Concl'd)	I N T A K E				
	(Excluding pre-employment or pre-apprentice-ship courses, which are included in Table 11)				
	1952-53	1953-54	1954-55	1955-56	1956-57
Vancouver Vocational Institute and Pacific National Exhibition Grounds (Concl'd)					
Steam Fitting			12	13	27
Sheet Metal Work		8	26	34	39
Steel Fabrication and Welding					57
TOTAL	29	106	272	309	539

Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55

Newfoundland - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal a/		Provincial		Federal		Total
1951	N.A.		\$ 8,795.	16%	\$ 46,688.	84%	\$ 55,483.
1952	N.A.		55,351.	47%	63,100.	53%	118,451.
1953	N.A.		59,184.	39%	91,688.	61%	150,872.
1954	N.A.		94,648.	49%	100,407.	51%	195,055.
1955	N.A.		111,166.	54%	96,381.	46%	207,547.
Total	N.A.		329,144.	45%	398,264.	55%	727,408.

a/ Municipal School Boards do not share expenditures on vocational education.

Rate of Participation in Percentage by Year, 1951-55

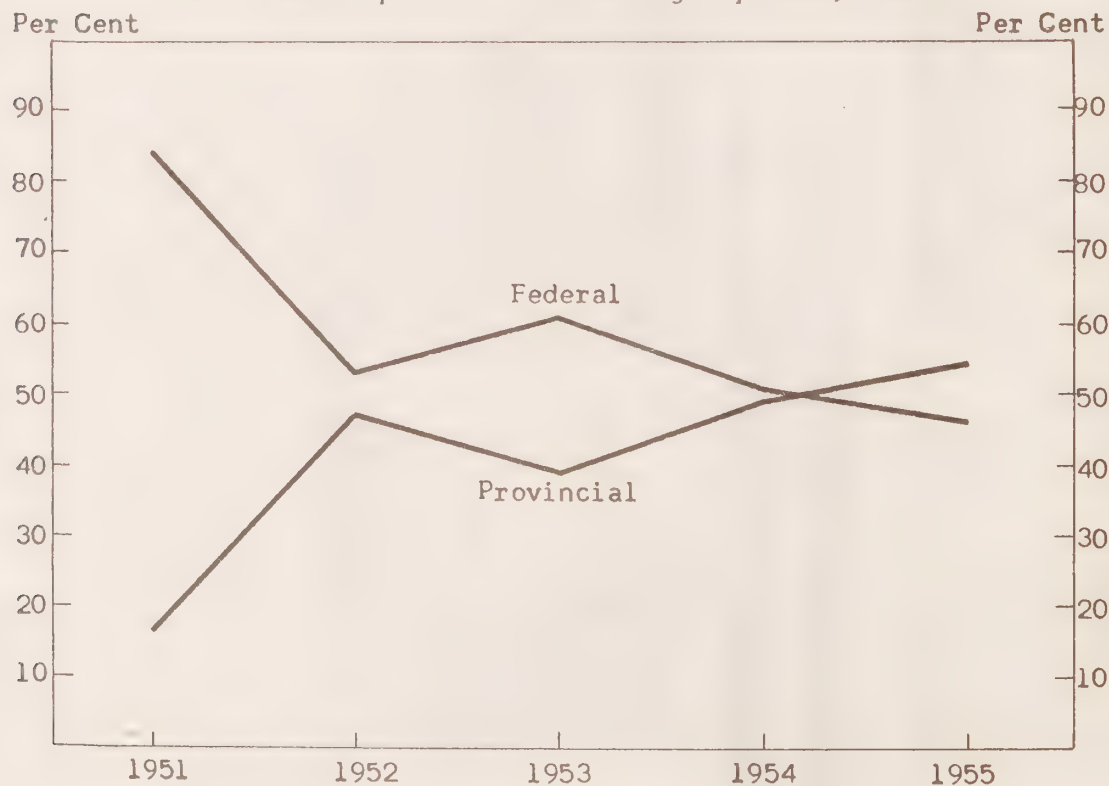


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Nova Scotia - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$ 82,300.	19%	\$ 164,500.	39%	\$ 178,300.	42%	\$ 425,100.
1952	136,600.	22%	265,800.	42%	229,400.	36%	631,800.
1953	165,300.	23%	301,000.	41%	258,600.	36%	725,000.
1954	209,900.	25%	341,500.	40%	295,700.	35%	847,100.
1955	220,200.	23%	431,300.	44%	321,100.	33%	972,600.
Total	814,300.	23%	1,504,100.	42%	1,283,200.	35%	3,601,600.

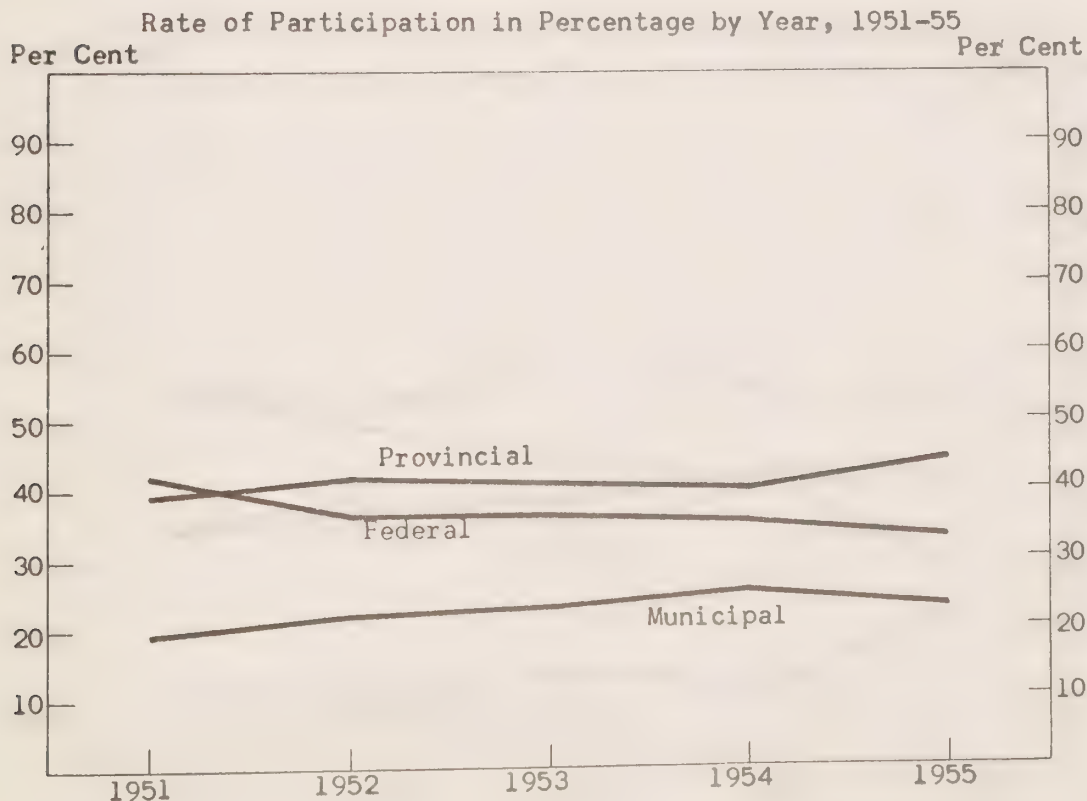


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Prince Edward Island - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$ 21,000.	26%	\$ 23,419.	30%	\$ 35,217.	44%	\$ 79,636.
1952	9,300.	13%	32,066.	43%	32,393.	44%	73,759.
1953	9,600.	15%	28,052.	45%	25,500.	40%	63,152.
1954	7,900.	12%	33,408.	50%	25,500.	38%	66,808.
1955	8,200.	11%	41,592.	55%	25,500.	34%	75,292.
Total	56,000.	16%	158,537.	44%	144,110.	40%	358,647.

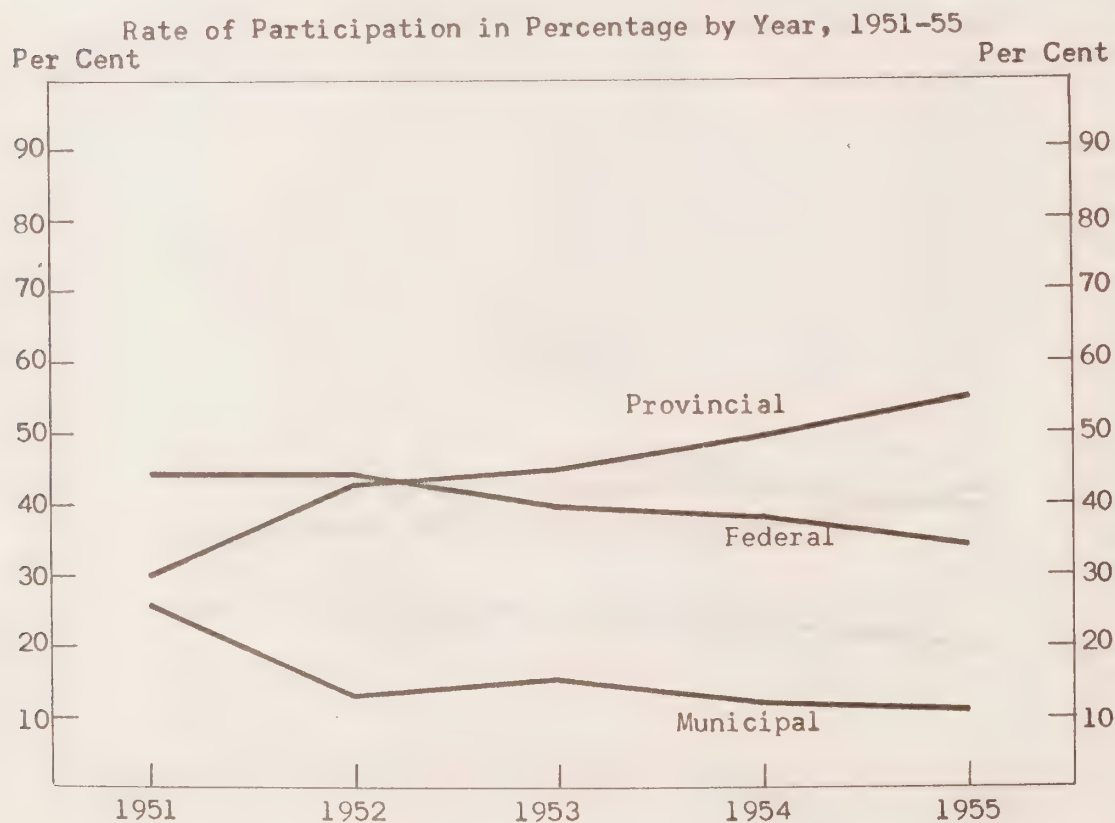


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

New Brunswick - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal a/		Provincial		Federal		Total
1951	\$1,635,867.	57%	\$1,053,034.	36%	\$ 208,097.	7%	\$ 2,896,998.
1952	1,884,799.	53%	1,434,342.	40%	247,934.	7%	3,567,075.
1953	2,796,247.	61%	1,616,541.	35%	203,300.	4%	4,616,088.
1954	2,169,141.	54%	1,662,183.	41%	202,800.	5%	4,034,127.
1955	1,814,591.	52%	1,446,186.	42%	220,550.	6%	3,481,327.
Total	10,300,645.	55%	7,212,286.	39%	1,082,681.	6%	18,595,612.

a/ Estimate given by the provincial officials.

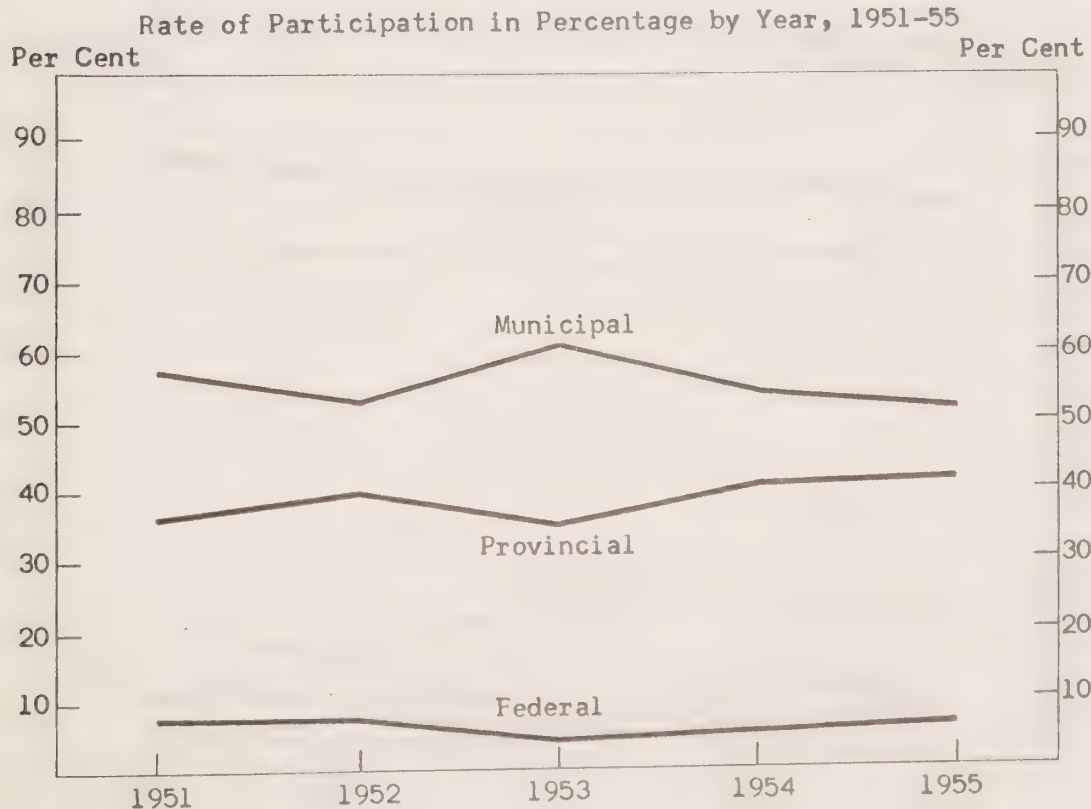


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Quebec - Distribution of Net Expenditures by Year, 1951-55
(On Institutes, Trade Schools, and Apprenticeship Centres)

Year	Apprenticeship Commissions a/		Provincial		Federal		Total
1951	\$ 358,000.	4%	\$ 6,203,000.	84%	\$ 863,000.	12%	\$ 7,424,000.
1952	482,000.	5%	8,176,000.	87%	730,000.	8%	9,388,000.
1953	791,000.	8%	9,186,000.	86%	656,000.	6%	10,633,000.
1954	866,000.	9%	8,310,000.	86%	454,000.	5%	9,630,000.
1955	433,000.	4%	10,754,000.	89%	835,000.	7%	12,022,000.
Total	2,930,000.	6%	42,629,000.	87%	3,538,000.	7%	49,097,000.

a/ Apprenticeship commissions share expenditures with the provincial government for the apprenticeship centres only.

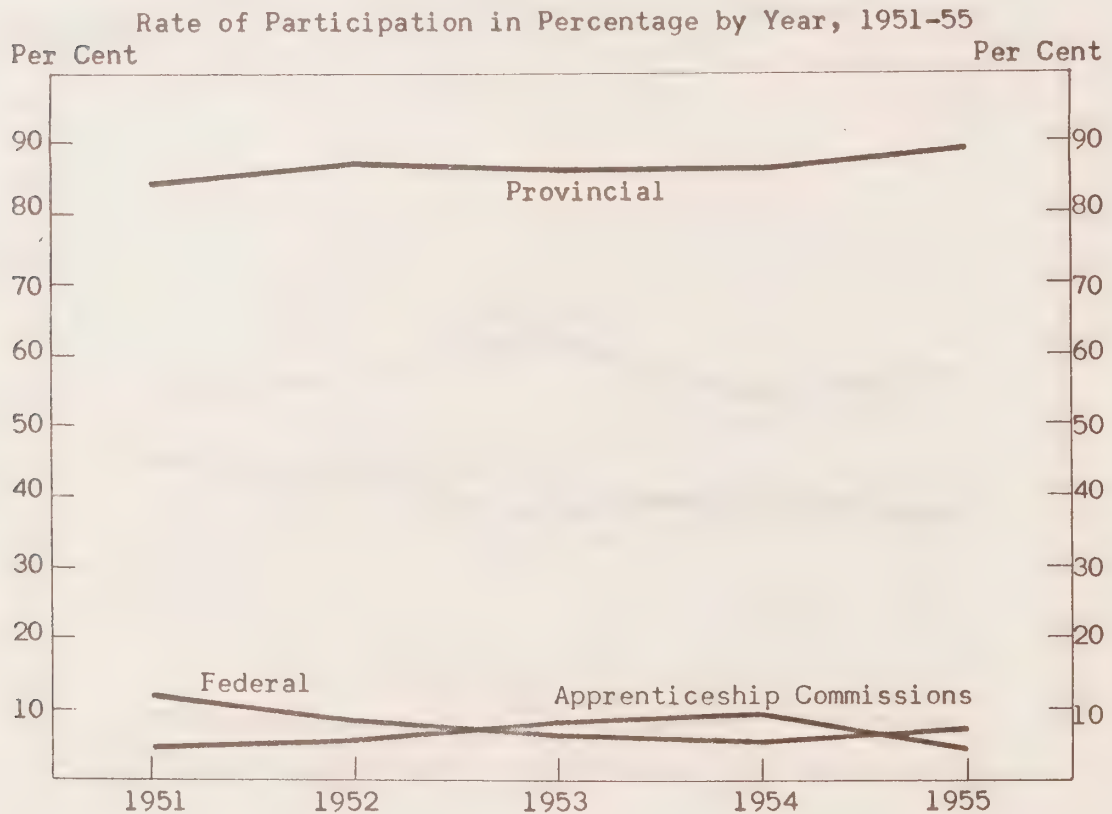


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Ontario - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$ 9,140,069.	71%	\$ 2,618,401.	20%	\$1,119,017.	9%	\$12,877,487.
1952	10,600,358.	73%	2,019,230.	14%	1,951,925.	13%	14,571,513.
1953	10,819,270.	70%	3,553,449.	23%	1,190,019.	7%	15,562,738.
1954	12,413,921.	72%	3,695,121.	22%	1,004,298.	6%	17,113,340.
1955	14,419,849.	74%	4,267,973.	21%	898,742.	5%	19,586,564.
Total	57,393,467.	72%	16,154,174.	20%	6,164,001.	8%	79,711,642.

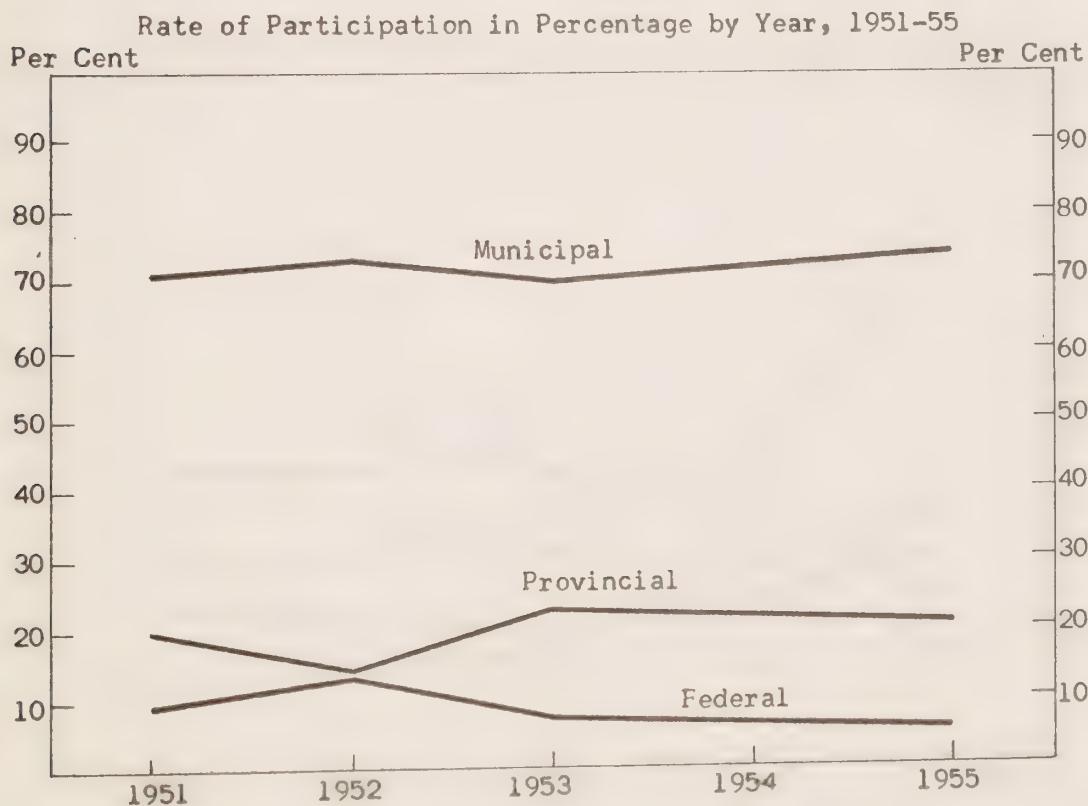


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Manitoba - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$ 213,323.	26%	\$ 324,181.	40%	\$ 281,685.	34%	\$ 819,189.
1952	431,977.	43%	307,466.	31%	266,863.	26%	1,006,306.
1953	487,629.	45%	358,357.	33%	239,463.	22%	1,085,449.
1954	515,098.	45%	370,173.	32%	255,615.	23%	1,140,886.
1955	537,519.	45%	377,556.	31%	282,174.	24%	1,197,249.
Total	2,185,546.	42%	1,737,733.	33%	1,325,800.	25%	5,249,079.

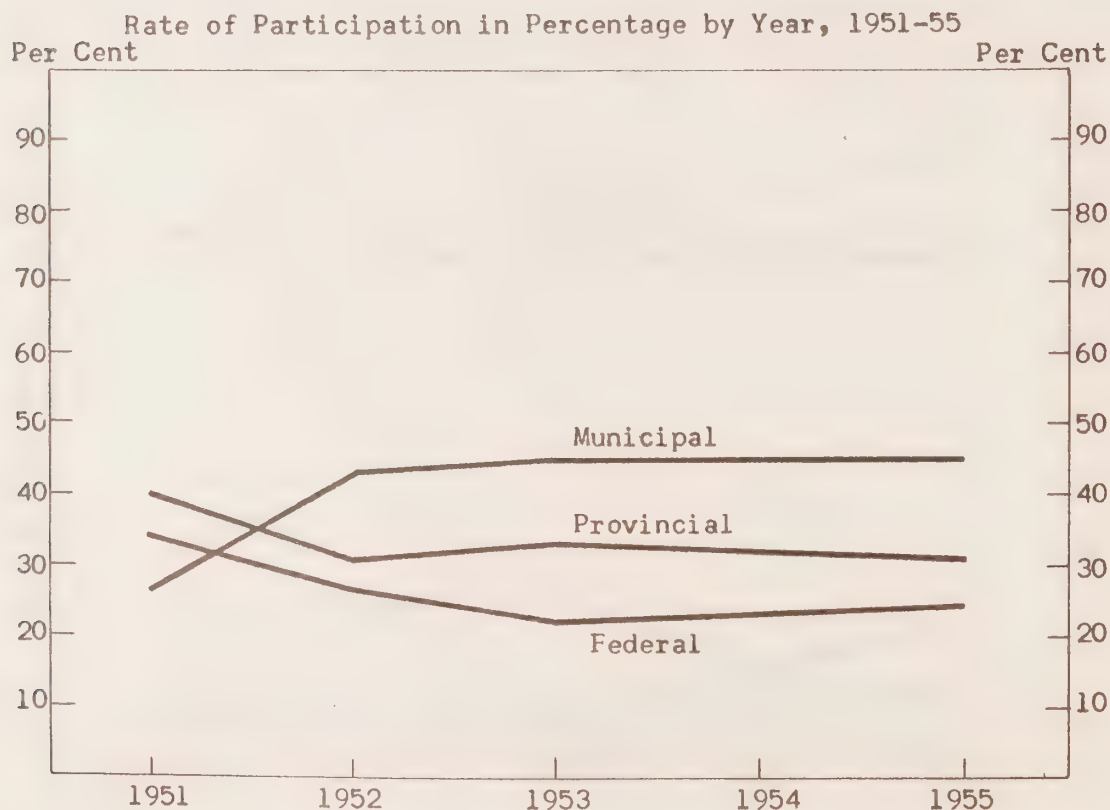


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Saskatchewan - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$2,018,500.	78%	\$ 276,126.	11%	\$ 284,330.	11%	\$2,578,956.
1952	936,959.	74%	160,769.	13%	163,175.	13%	1,260,903.
1953	515,557.	69%	108,164.	15%	117,279.	16%	741,000.
1954	257,500.	43%	190,246.	31%	157,734.	26%	605,480.
1955	1,063,200.	75%	216,624.	15%	137,500.	10%	1,417,324.
Total	4,791,716.	73%	951,929.	14%	860,018.	13%	6,603,663.

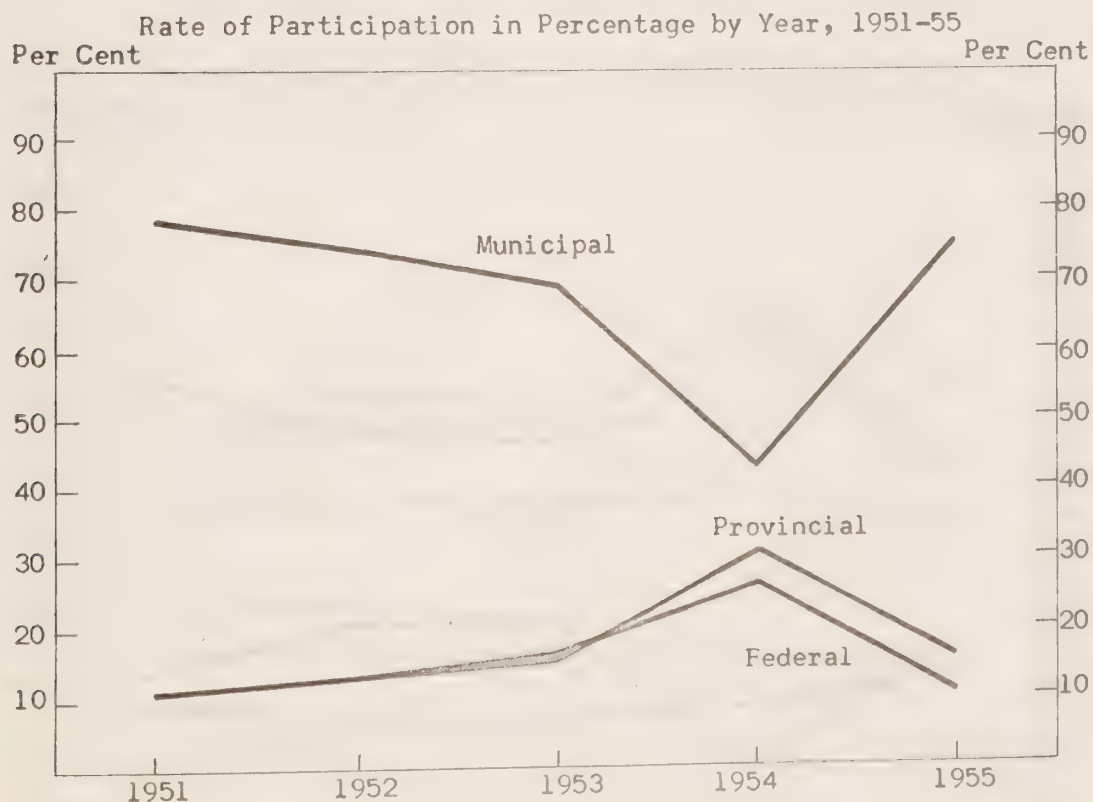


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Cont'd)

Alberta - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$ 367,200.	26%	\$ 740,000.	51%	\$ 332,800.	23%	\$1,440,000.
1952	116,000.	8%	1,113,900.	75%	262,100.	17%	1,492,000.
1953	792,200.	30%	1,478,400.	55%	410,400.	15%	2,681,000.
1954	554,000.	29%	1,057,700.	56%	279,900.	15%	1,891,600.
1955	380,300.	21%	1,117,400.	63%	289,900.	16%	1,787,600.
Total	2,209,700.	24%	5,507,400.	59%	1,575,100.	17%	9,292,200.

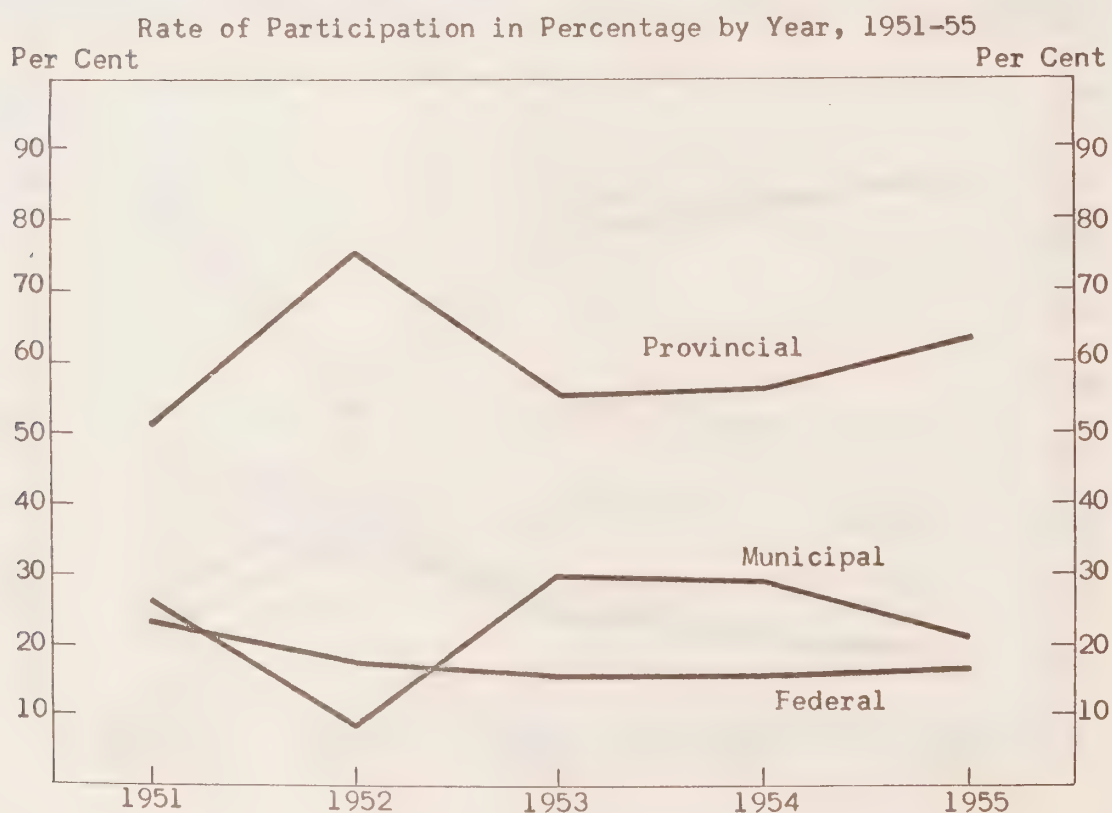


Table 13 - Distribution of Expenditure on Vocational Education
by Province, 1951-55 (Cont'd)

British Columbia - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal		Provincial		Federal		Total
1951	\$ 459,801.	36%	\$ 617,495.	48%	\$ 214,940.	16%	\$1,292,236.
1952	525,309.	37%	683,595.	48%	203,747.	15%	1,412,651.
1953	570,394.	37%	744,174.	48%	236,688.	15%	1,553,256.
1954	644,531.	37%	854,703.	49%	255,344.	14%	1,754,578.
1955	684,529.	33%	1,112,542.	53%	275,674.	14%	2,072,745.
Total	2,884,564.	36%	4,012,509.	50%	1,188,393.	14%	8,085,466.

Rate of Participation in Percentage by Year, 1951-55

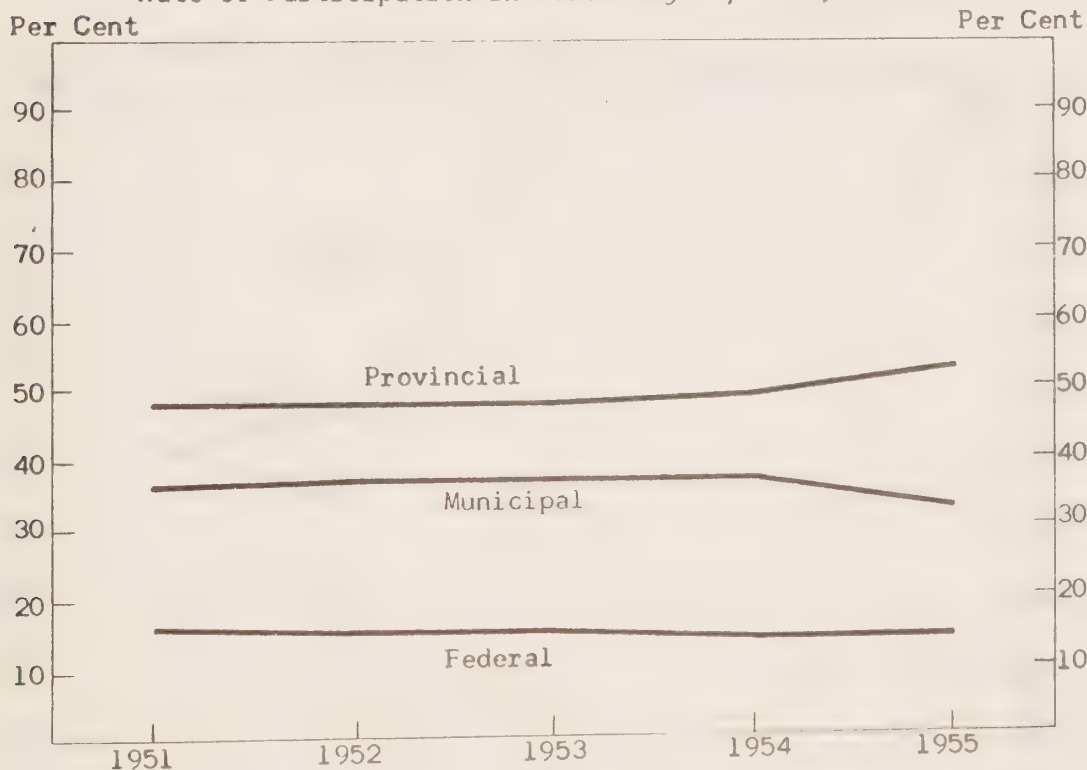
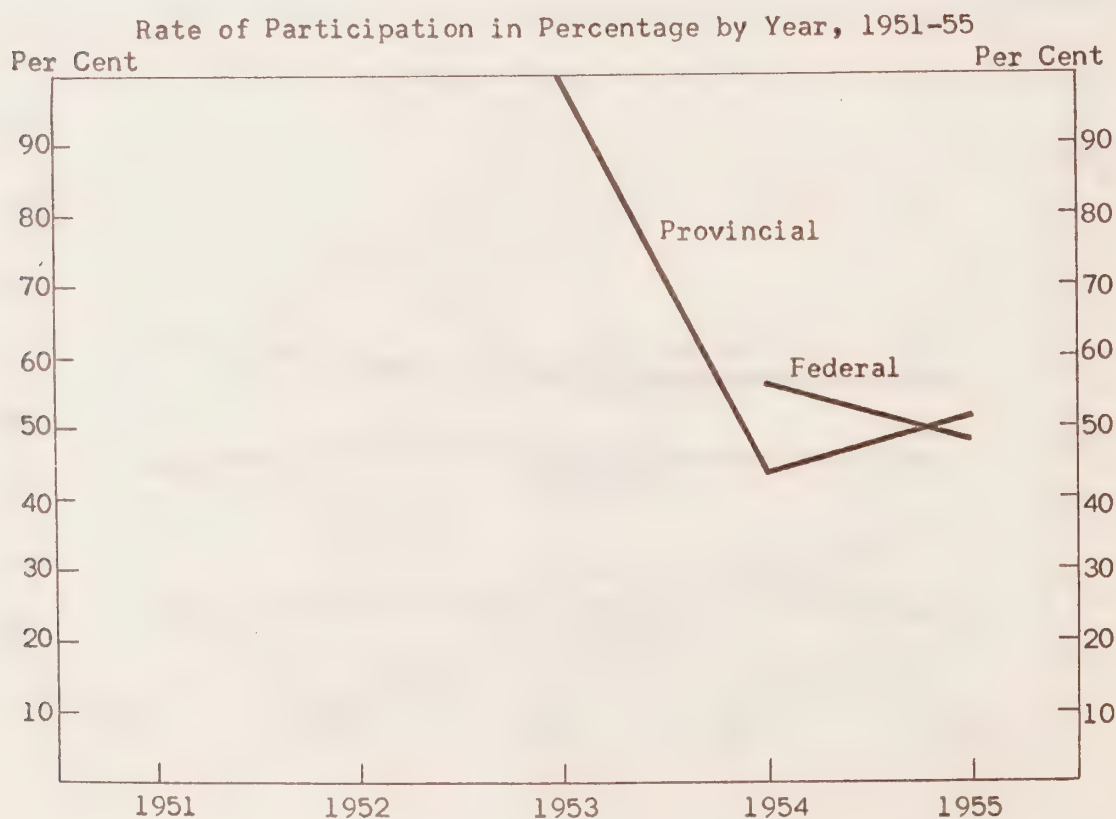


Table 13 - Distribution of Expenditures on Vocational Education
by Province, 1951-55 (Concl'd)

Northwest Territories - Distribution of Net Expenditures by Year, 1951-55

Year	Municipal	Provincial a/	Federal	Total
1951	-	-	-	-
1952	-	-	-	-
1953	N.A.	\$ 4,456. 100%	-	\$ 4,456.
1954	N.A.	4,649. 44%	\$ 5,950. 56%	10,599.
1955	N.A.	16,578. 52%	15,019. 48%	31,597.
Total	N.A.	25,683. 55%	20,969. 45%	46,652.

a/ Provincial refers to government of Northwest Territories.



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